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MANUAL

OF

PATHOLOGY AND PRACTICE,

BEING THE

OUTLINE OF THE COURSE OF LECTURES DELIVERED

BY

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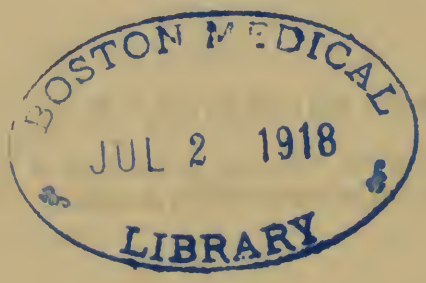

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PATHOLOGY.

The science of *Pathology* of necessity presupposes and is founded upon an acquaintance with the doctrines of *Physiology*. As Physiology is the history of the several organs of the animal body and their functions, in a natural and *healthy* state; so

Pathology consists in a knowledge of the *morbid* conditions of the organs and their functions.

Disease has been variously defined; it always implies some irregularity or aberration in the performance of one or more of the functions of the body.

This irregularity of action may be owing to obvious alterations in the structure of some parts of the body, or it may occur without our being able to detect any change in the structure of any part. Hence the distinction of diseases into Functional and Organic—and hence the importance of a close inspection of the condition of the parts of bodies dead from disease—a description of which constitutes the useful and interesting department of morbid anatomy.

Disease may be local or general. It is *local* when the cause producing it acts with special force upon some single part or organ, while yet no participation in the morbid consequences is extended to other parts. It is *general* when the primary local affection has been communicated or extended throughout the system. Each of these may produce the other. It is plausibly argued that all diseases are primarily local, and afterwards radiated or rendered universal by nervous sympathies, and by vitiation of the fluids of the body. General disease may also produce local affections, as in hepatic and splenic inflammation from the concussions of fever, and in gout and scrofula.

Causes of disease divided in the books into Remote and Proximate. I prefer to use the terms Efficient and Constituent.

The *proximate cause* has been absurdly enough regarded as the disease itself. I would denote it as being the first *essential*

link in the chain of morbid actions, whose results become obvious in the symptoms of disease. This is the *constituent* condition, upon which depend all the circumstances which give diseases their characteristic and peculiar form. The consideration of proximate cause—a very complicated and obscure subject—is better deferred, therefore, until we enter upon the consideration of maladies separately.

Remote causes—the agents *efficient* in the production of disease—distinguished into the Predisposing and Exciting—terms happily chosen as suggesting clearly enough their own meaning. As to the specific energy of these modes of causation, I infer that *disease in the abstract* may be attributed to the disturbing influence of exciting causes, while the mode and seat of the disease generated will be determined by the existing predisposition upon which the former has acted. Yet we cannot always draw a line clearly between them. Predisposition may be so strong as to develope disease without the need of application of any transient excitement—as in gout, scrofula, &c.—and on the other hand, an exciting or occasional cause shall have power to produce immediate predisposition, or rather perhaps of itself to determine the nature of subsequent and consequent disease, as in small pox and other contagions.

Brown, Broussais, Parry, and other pathologists have taught that the effect of all such causes is only an increase or enhancement of the natural actions—in other words, that *morbid* differs from *healthy action* merely in intensity or *degree*. This is an important and mischievous error. That morbid causes occasion difference in *nature* or kind of action, as well as in degree, I infer from the changes which take place in the secretions of disordered surfaces, which are altered in properties, obvious and chemical; and from the newness and peculiarities of diseased structures which are built up, as in fungus hematodes, cancer, &c.

Predisposing causes may be internal or external, original or accidental. Individual peculiarities of structure give predispositions, as we see in congenital shortness of neck, which tends to occasion apoplexy—narrowness of thorax, inviting respiratory disorder, &c. Minuter peculiarities which we cannot see, we deduce from the results as observed.

Predispositions, evinced by known tokens, constitute Temperaments. The consideration of these belongs properly to Pathology, though treated of usually among the subjects of Physiology. Perfect health is incompatible with the exquisite or notable development of any temperament.

Sex, Age, Color—each exhibit well marked and notable predispositions.

All the individual predispositions, whether internal or external, may be transmitted hereditarily. Of this the examples are indefinitely numerous. *Idiosyncrasies* are either the result of internal peculiarity of conformation, or of sympathetic association; and thus present instances of both *original* and *accidental* predispositions.

Numerous farther examples of acquired or accidental predispositions may be adduced in recurrent or paroxysmal diseases, such as hysteria, mania, intermittent fever, &c. which become habitual, as the phrase is; that is, which generate a predisposition of irresistible strength. It is possible also that this is often done by effecting some minute changes of structure in the parts chiefly affected, as in rheumatism, &c.

Among external sources of predisposition we enumerate *climate, topographical peculiarities of surface, of country and soil, &c.;* hence national temperaments: *state of society*—many diseases are the product of civilization and refinement, and so absolutely artificial: *conditions of life and occupations, quantity and quality of food.*

Exciting causes.—Among these we instance *alternations, changes of any kind.* Change of climate, a very familiar cause in the present day of emigration. Vegetables and the lower animals are thus affected as well as man. The evils thus occasioned may be lessened by certain precautions, but all emigrants to distant or contrasted climates must expect to suffer more or less before they can attain a complete assimilation or adaptation to their new circumstances.

Heat produces apoplexy, phrenitis, inflammatory fever, hemorrhage. It affects the *internal* viscera by increasing the force and frequency of the circulation, and by their sympathy with the skin, whose exhalation it increases largely; thus it gives rise to hepatic, gastric, and intestinal derangements.

Cold causes pernio and other external inflammations, and by constricting the surface, and interfering thus with the perspiratory function, gives rise to a host of diseases of undue determination—pleurisy, enteritis, catarrh, &c.

Alternations of temperature are proverbially injurious. Heat applied after cold is perhaps the most dangerous of the two changes.

Food of improper quality, or improper quantity. Scurvy arises from salted meats, probably from all restricted and exclusive diet long persevered in under circumstances of physical and moral depression; dyspepsia from undue use of acids and seasoning; colics, &c. from meals too large for the stomach.

Intemperance in drinking.—Vinous and alcoholic fluids are dangerous in proportion to their intoxicating power. Their immediate impression is made upon the stomach and brain, but acting upon predisposition, they may occasion an infinite variety of maladies.

Dress, manners, customs, amusements, &c., if not properly regulated, all become in their turn exciting causes of disease. The female stay or corset has been animadverted on much more than it deserves. Properly arranged, it gives support as well as adds neatness and beauty to the form. It may be so tightly drawn as to interfere with locomotion and respiration, and to oppress the abdominal viscera; the steel piece may also be too broad, and thus injure the breasts.

Occupations are among exciting causes. Millers, stone-cutters, needle-grinders, cotton-ginners, are subject to bronchial and pulmonary inflammation from the mechanical irritation of particles inspired. Painters, gilders, &c. are injured by the fumes of the metals they employ. Manufacturers in general suffer both from confinement and from monotony of life, with utter hopelessness of change or improvement of condition.

The passions must be enumerated here. I regard them as all stimulating in their immediate influence, and as directed primarily to the sensorial organs.

Anger, grief, and *joy,* produce apoplexy, hemorrhage, phrenitis, hysteria, &c.

Love—a dangerous passion even if successful; when otherwise, often gives rise to insanity.

Fear increases the velocity of the circulation, and often adds greatly to the force of muscular action; has been known in a few hours to give the hair a silvery whiteness, and the whole frame the aspect of sudden and premature old age.

Poisons, divided into the *mineral*, *animal* and *vegetable*, to which I would add a fourth, the *gaseous* or *aërial*, as the sources of some of them are not well known, while their form is obvious.

1. The *vegetable* poisons.—Some act by inhalation, as the upas and mancinella; others by contact with the skin, the Cerbera ahovai, mannarilla, cashew nut, Rhus radicans and Rhus vernix, mustard, &c.—these irritate and inflame; others still upon the stomach and intestinal tube—these are our emetics and cathartics; and others on the nervous system—these are the narcotics, which relax, intoxicate, and produce stupor, coma and convulsions; lastly, others require to be introduced into the circulation, as the woorara and ticunas.

2. The *animal* poisons are reserved for future consideration in another connection.

3. The *mineral* poisons are multiplied in number by chemical processes. The metals are in their proper state harmless, but the salts of many of them are poisonous, as of mercury, lead, arsenic in a high degree of intensity, copper, antimony. The pure alkalies and the acids are irritating and corrosive.

4. The *aërial* poisons.—Some of these are of known chemical origin and qualities, as the several irrespirable gases; others are in both these respects obscure and undetected, as epidemic contaminations and malaria. Of the first class, the most common is the carbonic acid gas, and the other combinations of carbon and oxygen so often met with in mines, wells, vaults, &c.—these produce asphyxia. The precaution should be taken of sending into suspected places a lighted candle; if this cease to burn, quicklime should be thrown in, in sufficient quantity to absorb, while slacking, the superabundant carbonic acid gas. Charcoal burned in ill-ventilated apartments consumes the oxygen, and combines with it so rapidly as frequently to have thus occasioned loss of lives. Air which has been breathed becomes soon unfit for respiration. A terrible instance of the effects of confinement in a close apartment, is recorded in history as having occurred in Cal-

cutta upon its surrender to the Suba of Bengal in 1756. One hundred and forty six of the English garrison were confined in a narrow dungeon during a hot, airless, and miserable night—one hundred and twenty three perished before morning.

Malaria.—This term preferred in compliance with modern usage to the word *miasm*, which has both etymologically and in the writings of many physicians, an extension so wide as to include all aerial contamination, whether chemical, contagious or epidemic.

Malaria—defined as a peculiar distemperature of the air of certain regions, derived from sources to be considered in order, traceable only by its effects, and as yet undetected by any chemical or mechanical investigations. Its nature is unknown—its very existence has been made matter of dispute—all the influences ascribed to it have been attributed to the mere agency of *moisture*, or of moisture associated with heat; an error evidently owing to the concomitance of these exciting causes, and their tendency to promote its efficiency.

The *principal source* of malaria is believed to be the decomposition of vegetable matter. The growth and production of vegetables, as well as their subsequent decay, are fostered by the presence of moisture and the action of high temperatures. Effluvia, thus disengaged, produce all the forms of fever, and many other diseases so well known as being thus generated, that their occurrence is regarded as proving the presence of malaria, an agent capable of being every where identified by these its effects. Local and limited sources are, in this way, capable of originating much evil; thus, in a confined cellar or the hold of a ship, decaying vegetables create fever. Hence, malaria fevers appear in summer and autumn, and are intense in proportion to the temperature of the country affected. In hot countries we have the plague, yellow fever, bilious remittent, &c.—in colder regions, intermittents of chronic character, hepatitis, jaundice, &c. *Cold*, when sufficiently intense, puts a check on the influences of malaria. *Heat* promotes the action of malaria, by generating a predisposition in the system favorable to it, and by stimulating and afterwards relaxing the vessels of the skin and liver. *Moisture* is not only necessary to its production, but likewise becomes the

medium in combination with which this poison acts upon the body—a combination it would seem, of essential necessity to give it effect. Hence the known insalubrity of fogs and dews in malarious regions; and hence the advantage of elevation from the exhaling soil.

A certain degree of concentration, and a certain amount of dose, are necessary also to the efficiency of malaria. It is in this property chiefly that a virus, technically so called, differs from a poison; the former being independent of both these circumstances: thus the smallest particle of variolous or vaccine matter can infect the whole body. It may indeed be diluted to inefficiency, but if it infect at all, the degree or force of its action has no reference to the amount or concentration. The action of a poison however is always modified by the dose.

Calms are favorable to the concentration of malaria; winds and storms waft it away, disperse and dilute it.

Malaria probably acts upon the skin primarily. Thus we account for the insusceptibility of the negro race, who perhaps differ from the white more in this point than in any other. It also acts more readily during sleep, when the functions of the skin go on with energy.

Any thing which depresses the vital power, may be said to assist its invasion—fatigue, want of food, of rest, of clothing, &c.

Habit diminishes in the white man rather the *violence* of its effects, than the susceptibility to its action. Many residents in low countries have regularly annual attacks—these are of no great severity, but infallibly undermine the constitution. A stranger is attacked *violently.* Latent period doubtful—differs probably in proportion to intensity of cause applied, which may at once excite, or may only generate predisposition. Trees are found to oppose an efficacious barrier to the invasion of malaria. I am uncertain whether this is owing to the mechanical impediment which they offer to its passage, or whether it is better accounted for by the supposition of the existence of some attractive force, which causes the miasma to adhere to their foliage, or by the suggested evolution of some efficient counter-agent. This last conjecture may assist us to explain the healthfulness of our pine barrens; among the favorable circumstances in whose po-

sition I would enumerate the terebinthinate exhalations from the trees, as probably balmy, tonic, and salutiferous. The Jussieuia grandiflora of our southwestern bayous is maintained by Dr. Cartwright to be a corrective or antidote to malaria.—*Vid. Western Journal, June,* 1840.

Among other sources of malaria, the decomposition of decaying volcanic matter has been suggested, and applies well to the phenomena familiar in Italy. The country about Rome is not marshy but volcanic; so of Civita Castellana, &c. &c. Ferguson declares the only necessary condition to be, "paucity of water succeeding its abundance." Some medical philosophers would substitute the agency of *specific animalculi* for all miasmatic and epidemic influences; and Dwight has proposed *animalcular putrefaction* as a source of malaria.

May there not be some common product of the several chemical actions going on in these cases, aërial and of obscure nature and qualities, whose identity is proved by the identity of effects it every where gives rise to?

Animal Putrefaction.—History, both ancient and modern, offers us frequent instances of pestilence produced by this cause. The burial grounds of Paris, London and New York, proved to be injurious to the health of the vicinity. The Catholic churches on the continent of Europe, often require to be disinfected.

The processes which immediately precede, and those which accompany or follow death, tend to generate a poisonous quality in animal matter. The flesh of diseased animals is unfit to be used as food, and becomes injurious when so used—in one instance, a specific disease is thus communicated, "*milk sick*"—a gastritis. Among anatomists, a very severe and not unfrequently fatal affection is produced by puncture and inoculation in dissection, with the scalpels, &c. imbued with the fluids of a subject. The absorbents inflame, and the glands; a cutaneous eruption comes on, attended with violent inflammatory fever and great prostration of strength.

Animal Poisons.—Divisible into two classes. 1st. Those which result from natural and healthy, but peculiar actions. These are secretions intended for attack or defence, as the sting of the bee, wasp, &c., the venom of the snake. 2d. Such as

are produced by diseased processes—the milk and butter of a milk-sick cow, the saliva of a rabid animal of the feline or canine tribe, vaccine and variolous matter, &c. Some of these are contagious.

Contagion.—Defined to consist in a peculiar matter given out by a diseased surface, which possesses the power or quality of generating in a healthy body a diseased condition, similar to that whence it derived its origin.

To prevent confusion in the use of language, I would follow the distinction proposed by W. Philip, in which *contagion* is pointed out as the morbid poison, and *infection* as the act of communicating disease. Hydrophobia is contagious in the feline and canine tribes, but a human subject affected with it, is incapable of communicating it.

The matter of contagion may be either *palpable* or *impalpable.* Vaccine, chancre, gonorrhœa, psora, offer examples of purely palpable contagions. These are transmissible only by actual contact of the morbid secretions, with some portion of absorbing surface.

Scarlatina, rubeola, parotitis, pertussis, give out an imperceptible emanation, which affects the healthy subject, we know not exactly how.

Variola, plague, varicella, produce a virus of palpable form, which is capable of acting, either when directly applied, or after having become *impalpable* by solution, and diffusion in air. Yet there are perhaps here given out two forms of contagion, the palpable and impalpable. I am doubtful of the solubility or diffusibleness of any of the palpable contagions.

Of the physical and chemical qualities of the matter of contagion but little is definitely known, except in a few instances. It is not only thrown out in a distinct form, but seems to be diffusible in the blood, unless we suppose the whole mass of blood to become contagious matter. For transfusion of blood has communicated glanders and farcy in the horse and ass, and Home, Speranza, and others, have communicated measles and scarlatina by sanguineous inoculation in the human subject.

There are but two agents in nature which have been plausibly regarded as specific disinfectors—lime and heat. Chlorine and

some of its combinations have been ranked here, but I think without sufficient proof. Vinegar and sulphurous acid are also employed.

Contagious matter is regarded as a virus rather than a poison, because quantity does not modify its effects. Hence, also, it has been supposed to act by contaminating the fluids of the infected body, and impressing on them a progressive change, or assimilation, as it has been termed.

The matter of contagion varies in reference to its modes of efficient application. It infects by

1st. Inoculation—insertion in a wound or abrasion, either of a palpable matter or of diseased blood—as in vaccine, small pox, herpes, tinea capitis, hydrophobia. Under this head we place, of course, those propagable by sanguineous inoculation, or transfusion of blood.

2d. Contact—favored of course by friction or protracted application, as in ophthalmia, psora, gonorrhœa, syphilis.

3d. Confinement in vitiated air, as in hospital gangrene, erysipelas, probably phthisis.

4th. Near approach, as in typhus, scarlatina, measles, hooping cough, sore throat.

5th. Fomites. Various articles which absorb contagious matter are so called; woolen and silk cloths, cottons, furs, feathers, &c. These retain it long and tenaciously, and preserve its virulence little impaired. The clothes of a physician, it should be always remembered, may by thus entangling contagious particles convey them and communicate disease.

6th. Atmospheric diffusion, as in plague, small pox, dengue, cholera, and numerous others.

Contagion has no other source than the morbid action in diseased bodies; but it is an error to infer that contagious diseases arise exclusively from the influence of contagion. They differ widely in their origin. Some are easily traceable, as psora, lues venerea, typhus, ophthalmia; of others the history is obscure, as of measles, pertussis, &c., but indeed it is obvious that all must have had a *spontaneous beginning*, apart from contagious transmission.

Contagions differ in regard to their latent periods after infection. Some of them follow a known rule, liable to exceptions. Thus after vaccination and variolous inoculation, about three days pass away before any obvious results occur. For the most part they are indefinite. Typhus has been known to assail immediately after exposure; the latent period of measles often extends to a fortnight or three weeks; and hydrophobia, it is said, has been postponed for six months.

Contagions differ also in comparative force or efficiency; from small pox, which extends itself either by inoculation, contact, mere approach or aërial diffusion, to phthisis, which requires close and protracted confinement within a vitiated atmosphere of narrow limit. Scarlatina, typhus, pertussis, and cholera, will occupy a middle place in this comparative catalogue. It is probable that no disease is contagious throughout the whole of its duration, and it would be interesting to know the contagious stage of each individual malady communicable in this way. Small pox has perhaps two such periods; the first being the eruptive stage, when an impalpable matter is given out from the whole surface; the second is ascribed to the maturation of the palpable virus, which is supposed to be soluble in the air. I am unwilling to confound here the palpable and impalpable contagions. The latter I suppose to be the febrile emanation, which may arise as well in the secondary as in the eruptive stage of fever.

The contagious periods of febrile diseases seem to me to be much more limited than is generally supposed.

It is not easy to decide the question of the contagiousness of any given form of disease; the following seem to me to be the best and most reasonable *tests* that can be offered:—

If, in repeated instances, under the notice and by the report of competent observers, a single case be the forerunner of others in the immediate neighborhood, provided the circumstances of season and locality were sufficiently varied to remove it from the list of endemic affections.

If it exhibit an evident preference for a dense population, or confine itself within the limits of towns, cities and villages.

If a household or neighborhood, previously healthy, be attacked successively from obvious communication with a sick body, or contact with Fomites.

If those escape uniformly or very generally who take care to avoid such cases and Fomites.

The questions concerning contagious disease are of very great importance, as they bear upon the commercial and ordinary intercourse of nations.

Superfluous regulations of a restrictive nature have often been stigmatized as *cruel*; the imputation will lie more properly against such as are *inadequate.* Every community has a right, and is indeed bound in duty, to establish its own quarantine regulations.

Some of the contagions are endowed with the property of destroying, in a system once affected by them, the tendency or disposition to a recurrence or second attack—thus variola, rubeola, pertussis, parotitis. From the singular fact that vaccine exhibits a protective influence in this manner to shield from, or at any rate to modify small-pox, some have inferred their identity; explaining the obvious differences upon the conjecture, that the former, in a course of successive transmissions through the systems of the lower order of animals, as the horse and the cow, has undergone these alterations in external character and symptoms. This view is not satisfactory. That there is a specific difference between them seems proved by the fact that while vaccine protects against or notably modifies variola, it does not so modify or protect against itself, but may be repeated many times in the same subject. The majority of contagions, and especially the non-febrile, give no protection against second attacks, but may recur with indefinite frequency.

Diseases are spoken of as Endemic and Epidemic; the latter being divided into local and general epidemics.

1. Endemics are of *permanent prevalence* in special localities, governed perhaps by known conditions of season and temperature. Intermittent fever is endemic in Holland; bilious remittent in all malarious regions; yellow fever in Havanna and Vera Cruz; cretinism and goitre in the Valais; pellagra in Lombardy; milk-sickness in several portions of our southwestern country; tumid leg in Barbadoes; plica in Poland.

2. Local epidemics, often confounded with the above, are *occasionally prevalent* in certain localities. The causes of this prevalence are both transient and obscure, their influence

bearing no obvious relation to seasons, as distinguishable from each other. Yellow fever sometimes prevails as a local epidemic in situations where it is not endemic; so also dysentery, typhus, &c. Both contagious and endemic diseases may, from unknown circumstances, become local epidemics, as bilious fever, hepatic affections, scarlatina, plague, and pertussis.

3. General epidemics. Under this head we comprehend all those forms of pestilence which have at various periods spread themselves over the world, unconfined by the limits of geographical position above referred to, and in many instances uncontrolled by whatever conditions of season, climate, and national peculiarities. Such was the "black death" of the fifteenth century; such are influenza and cholera.

Of the several causes of endemics it will be best to treat in detail under the several heads to which they belong. Concerning the *origin of epidemics*, a few observations may be made in this place.

1. Local epidemics have a definite reference, which, although it may not be well understood, is uniformly observed, to the locality and other circumstances of the position where they occur.

2. General epidemics admit of no such circumscribing conditions.

3. Endemic diseases, if of *febrile* character, often become local epidemics; the *non-febrile* show no such power.

4. The febrile contagions, however generated, also become frequently local epidemics.

5. Endemics are incapable of becoming general epidemics, because limited, as by the description of their sources.

6. Febrile contagions on the other hand may, and often do become general epidemics, spreading on all sides, regardless of locality, climate or season.

7. All general epidemics are febrile—I do not hesitate to say, febrile contagions. None of them are endemic; none are to be accounted for by changes of atmospheric or telluric conditions.* No known agent, except contagion, retains its charac-

* An apparent exception presents itself in influenza—epidemic catarrhal fever. This is, perhaps, the only disease which, in its sporadic form, is regularly producible by agents not belonging to the class of specific poisons—as where a single

teristic influence—as does the cause of a general epidemic, be it what it may—throughout every variety of season, climate, local position, temperature, habits, and modes of life, whether individual or national.

The capacity for propagation or self-extension, is most notably different in the different forms of epidemic disease. Suppose a ship to arrive in any given sea-port town, having her hold filled with "infected atmosphere"—from a rice-field; or from a city where typhus is prevailing; or from Vera Cruz or New Orleans, when suffering from yellow fever; or from some seat of epidemic cholera.

1. The rice-field air, however impregnated with poisonous malaria, would be harmless to all around. If any one entered, he would bring away with him no poison adhering to his clothes or person, though he might fall sick (especially if he slept in it) of remittent or intermittent fever.

2. The typhus atmosphere may perhaps diffuse itself, though this is doubtful; to become efficient as a cause of disease it requires that a subject remain in it some time, or labor under some predisposition.

3. The yellow fever atmosphere would *probably* spread itself, the season being favorable, and attack subjects in the neighborhood.

4. The cholera atmosphere would scarcely fail to diffuse itself on all sides: and in each of the three last cases, every patient would become a generating centre, adding to the quantity of virus in the air of the region into which such a ship is introduced.

Parasitic animals should be classed among exciting causes of disease. Psora is supposed to arise from the irritating presence of a peculiar animal, the "itch insect;" and some fanciful pathologists have attributed many diseases to animalculæ, as dysentery, cholera, &c.

Worms.—The lumbricus is the principal, and is capable of producing in an infested child almost any form of disease, according to predisposition. Ascarides and tæniæ give rise to peculiar symptoms.

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individual is exposed to cold and moisture, or many are affected by sudden atmospheric changes. But this exception is only apparent, influenza often spreading independently of any such contingencies.

DE SEDIBUS MORBORUM.

The fluids of the body preponderate very considerably, being in a ratio of 9 to 1 to the solids, as some physiologists calculate. This estimate I regard, however, as somewhat exaggerated.

The primary seats of the vitality of the different portions of the animal structure, are the sensorial and circulatory systems. Every part of every tissue, depends immediately upon its nerve, and the blood sent to it, for its life, and these, the *nerves and blood*, are dependent upon each other. Each atom which is gifted with life, receives it from nerve and blood.

These, then, must be the primary seats of disease.

Diseases purely functional, may be said in the first instance to affect exclusively the sensorial system.

Structural diseases on the other hand, affect the vascular system.

Sensorial and vascular derangement intermingle together, and produce each other.

There are *nervous* affections of the whole or part of the *circulatory* system, as syncope, palpitation.

And *vascular* derangements of the whole or part of the *sensorial* system, as apoplexy, phrenitis.

Nervous and *functional* affections may run into or produce *vascular* and *structural* derangements. Too intense light will occasion ophthalmia. Functional affections of the vascular system, by continuance, can scarcely fail to produce structural disorder, as in fevers, inflammation, &c.

It has been much disputed whether the fluids can ever be the primary seat of disease—no one can doubt that they undergo certain obvious changes in its progress. Whether any such changes are to be estimated as *among* the *primary* and *essential* circumstances, is the true question, and I am disposed to answer in the affirmative. The ancient advocates of the humoral pathology, carried their views on this subject quite too far, attributing all diseases to alterations in the qualities of the fluids, some of which cannot be proved to occur at all, whether as cause or effect. But it is fashionable in the present day of exclusive solidism, to go equally far into the opposite extreme. Truth lies

as usual in the medium. Chyle varies in quality, according to the food whence it is obtained. Blood must vary also, as derived from chyle. Scurvy, and some cutaneous affections, are the direct result of confinement to improper diet. Blood is also liable to many and important changes of condition, referrible to the more or less perfect performance of the function of respiration. That important diseases may thus arise, which shall depend directly on the state of the blood, cannot be rationally doubted. Typhus may take its origin in confined habitations, as well as in impure, insufficient diet.

Diagnosis consists in such knowledge of the seat, nature and history of any given disease, as shall enable us to distinguish it from every other. *Pain* will often point out the locality of disease. The *imperfect performance* of known physiological function is, however, still more important as a diagnostic symptom. *Sympathies* of noted and recorded occurrence, whether understood or not, often serve as valuable guides. But we are liable to be misled by each of these marks. Some important and dangerous diseases occasion little or no pain. Some painful affections, imply little or no danger. And the morbid sympathies which connect the organs are in numerous instances highly irregular and obscure.

The usefulness of pathological anatomy—the examination of bodies dead of disease, deserves to be carefully considered.

It cannot, except in a very few, and properly accidental cases, teach us any thing of the *causes* of disease.

Among the *effects* of disease which it detects and developes, it cannot help us to distinguish between *incidental* and *essential* lesions of structure. As to impairment of function merely, it gives no information. Nor can it ever aid us in tracing the *primary locality* or origin of disease; nor in following up its effects in successive series of consequences. The true value of morbid anatomy, lies in connection with observations carefully made, and exactly noted, during the progress of any given case, collated with reference to the cause of the attack, its mode of commencement, and its entire and minute history. By an observation of frequent or constant coincidences, we are taught to direct our attention to organs liable to become implicated in

future cases of similar character. The physician, therefore, should not neglect to unite these offices; he should take careful and precise notes at the bedside of the sick, nor consider himself to have performed all his duty, until he has instituted a minute examination of the dead body.

The *tendency* of all disease is, to death or disorganization. The old dogma of the existence of a restorative power in the constitution, a *vis medicatrix naturæ*, should be abandoned.

The cessation of disease (unless when brought about by remedial treatment) is owing merely to the removal of the causes which produce it. Sometimes the *exciting* cause is taken away; at others, the *predisposition* upon which it acted disappears—is as we say, exhausted or worn out. The well constructed, admirably ordered mechanism of the animal body, resumes its natural action, when the impeding or disturbing influence ceases to exert an influence upon it.

It is absurd to suppose disease to be in any case a *natural* or *spontaneous* action of the living body, or to imagine any principle prepared or provided to procure its removal: doubly absurd to suppose that such principle should act, such effort be exerted through, and by means of the very processes in which disease consists, and through which it developes itself. Disease, as Brown, and after him Rush, affirmed of life, "is a forced state."

Morbid causes produce death in two ways. Disorganization to a certain extent, is evidently incompatible with a subsequent resumption of the functions of any given system of parts. But, besides this, the mere *interruption* of an important function for a time is often fatal, without any lesion of any part or organ, as in suffocation from drowning, and in some cases of syncope, &c.

Death from disease, must vary in its attendant circumstances, with direct reference to the modes in which it is brought about.

Euthanasia, or death from old age, is owing to defect of action in the organs of supply, and the consequent failure of all the functions.

Death is best defined to consist in a cessation of excitability, the loss of the capacity of being impressed by, and of reacting upon stimuli applied. The phenomena of death do not constitute that state; they may be all present when animation is only

suspended, and the subject capable of resuscitation. Interment, in cities or populous towns, should be strictly prohibited; the ancient practice of burning dead bodies, ought on many accounts, to be preferred, wherever practicable.

PHENOMENA OF DISEASE.

Considered practically, diseases are mere collections of symptoms, the proximate or common cause of which is exceedingly obscure and difficult to be traced. These phenomena may, in this place, be considered in the order of the physiological systems and functions which they disturb or affect, and their *rationale* attempted to be given.

I. Of the *Digestive System.*—Its disorders are shown by

1st. Alterations in the appearance and condition of those portions of the system which it is in our power to examine. The *tongue* is furred, or covered with a morbid mucous coating, when the stomach and bowels are deranged and their secretions vitiated. It is red, and sore, and ulcerated, when they are inflamed. In fevers it is swollen, and sodden, and variously discolored on the sides and surface, if the stomach is irritated and the hepatic actions disturbed. In typhoid affections it is dry and of a dark hue; covered with a tenacious sordes or chapped. It is cold in cholera and pale. In purpura and the hemorrhagic state of fever it is livid and smooth, and exudes blood. Its papillæ protrude, of a bright crimson tinge in scarlatina. The *gums* are spongy, swollen, and disposed to bleed in scurvy, purpura, and in the hemorrhagic states of fever. The *lips*, cheeks, and the whole lining membrane of the mouth are apt to ulcerate—especially in children—wnen the mucous tissue of the stomach and intestines is irritated. The *teeth* and gums as well as the tongue are blackened by sordes in typhus.

The *abdomen* should be explored. Meteorism is shewn by tension or intumescence, light and resonant upon percussion; by fluctuation we know the presence of fluid effusions; aneurism by pulsatory tumor; and physconia by position, hardness, and weight.

2d. By functional disturbance manifested in any obvious way, as anorexia, gastric oppression, nausea. Vomiting comes on not

only to rid the stomach of some load, but is produced by any mode of irritation of the alimentary tube and its inflammations; it may arise also from gastric sympathy with other organs, as the uterus in pregnancy, the brain in apoplexy, in sea-sickness and after blows on the head. In fevers, it supervenes upon both gastric and cerebral derangement.

3d. By uneasiness or pain seated in any of the organs. Some abdominal pains are unaccounted for, such as those comprised under the terms gastralgia and gastrodynia; others arise from inflammation; some from flatulent distension, and some from mechanical pressure. Some probably depend upon mere hyperæmia, or vascular engorgement. It is usual to lay great stress on intolerance of pressure as diagnostic of inflammation, but this may be too much trusted to: parts forcibly distended are painful on pressure.

4th. By changes in the results of organic action, morbid secretions. The matters vomited in disease are exceedingly various; acid, oily, alkaline, bitter, white, brown, green, blue, black as in yellow fever, albuminous as in cholera, &c. These qualities are not always to be accounted for; of some the explanation is obvious, and so are the inferences to be drawn from their occurrence.

II. Of the *Circulatory System.*—*Syncope*, the cessation of action of the heart—*palpitation*, its convulsive action. The *pulse* derives its importance as a symptom of disease, from the almost universal sympathy, which extends diseased actions in other systems, so as to affect more or less the circulatory. The *pulse* of an infant newly born, beats about one hundred and forty strokes in a minute; declining from that time, the average adult pulse is about seventy to seventy five.

In health, the *pulse* is modified by a great variety of circumstances.

Idiosyncrasy.—In some persons it beats one hundred, in others not more than forty.

Sex.—The female pulse is somewhat more frequent than that of the male.

Stature.—In tall men it is less frequent, in dwarfs more so.

Muscular exertion makes it beat with greater rapidity.

Sleep makes it slower.

The *passions* and *emotions* add to its frequency, and perhaps its force.

Temperature.—Heat augments, cold (continued) diminishes its frequency.

Diurnal changes.—The pulse is usually somewhat more frequent in the evening.

These agents affect chiefly the *frequency* of the pulse in health.

The *healthy pulse* is *regular*—that is, the intervals between the strokes are precisely equal; it is *vigorous*—that is, it resists with determined opposition, the influence of force applied to compress it; it is *full*—that is, the artery is completely, but not unduly distended by its blood.

The systole of the heart occupies a given portion of time, contracting steadily without harshness or hurry.

A morbid pulse may readily be distinguished then by comparison.

It is *more* or *less* frequent than in health.

" " hard or resisting.

" " quick, (abrupt or jerking.)

" " full.

Irregular in interval.

" force.

Intermittent, regularly or irregularly.

These comparative phrases address themselves to the judgment, convey a definite meaning, and are easily remembered and referred to.

These several morbid qualities of the pulse may be variously combined, so as to offer a great variety; the attempt to give fanciful names to which has introduced some disorder and confusion.

Plethora, in strict propriety, is always a relative term, implying a want of proportion between the quantity, or the stimulating quality of the blood, and the tone of the heart and vessels. Hence it is often met with in weak and debilitated constitutions.

I doubt the possibility of an absolute *hyperæmia*, or undue abundance of blood. Local hyperæmia, on the other hand, is one of the most common conditions of disease, being implied in all inflammations and congestions.

Anæmia.—The deficiency of sound or nutritious blood, often results from hemorrhages, natural or artificial, and from disease. The fibrine and red globules, would seem to be slowly supplied.

The *blood* undergoes many changes in disease. It becomes buffy or sizy. This is usually explained on the supposition that its coagulation being slow, the red globules fall to the bottom, leaving the yellow lymph on the surface; this explanation is easily shewn to be unsatisfactory. It becomes incoagulable from great fatigue and extremely violent inflammation; in death also from lightning, and from a blow on the pit of the stomach; but remains florid or black, and does not assume a buffy crust. Blood is black in typhus; attenuated and dissolved, as the phrase is, in scurvy; loses its salts and serum in cholera.

Hemorrhage—a symptom more alarming than dangerous in itself; occurs in opposite states of the system; when active, is less serious than if passive—in the former case, may have some good effect, as a mode of local depletion.

III. Of the *Respiratory System.*—Dyspnœa and orthopnœa defined, and accounted for. The *chest* should be carefully explored.—*Vide Chapter containing Examination or Exploration of the Thorax.*

Cough, the most common symptom of pulmonary inflammation, is yet not always present as a token of that condition.

Expectoration of mucus, or of thin, bloody, offensive, ichorous serum, may take place in various states and stages of bronchial disease, without giving occasion for very definite inferences; so also of purulent matter, this may either be from an abscess, from the circumference of a tubercle, or from the unbroken mucous surface; it does not prove abscess or ulcer to exist.

IV. Of the *Sensorial System.*—Pain is the most general symptom of disease, the expressions indeed being almost synonymous; yet, owing to the complexity of morbid sympathies, it by no means denotes of course the principal locality of disorder. The degree of pain depends upon the general sensibility of the patient, and upon the local sensibility of the part affected; it is also modified, both in kind and degree, by the nature of the case, so that it bears no regular proportion to the danger of the attack. The loss of sensibility, whether local or general, must augur unfavorably.

Permanent dilatation of the pupil is untoward, as being probably occasioned by compression of the brain; permanent contraction, by meningeal inflammation. Insensibility to light, as evinced by a fixed state of the pupil, is also unfavorable. Hallucinations of various kinds, amounting to delirium and insanity, are more to be dreaded when low and gloomy, than if cheerful or violent.

V. *Motory System.*—Great muscular prostration is always to be dreaded. Relaxation of the various sphincters, indicates a high degree of danger. Paralysis is still more unfortunate, whether of one half the body, transversely divided, *paraplegia*, usually affecting the lower limbs, or *hemiplegia*, which is confined to the right or left side, and both extremities. Trembling of the head, a common circumstance in the debility of old age; of the hands and tongue, often from intemperance. Cramps, or tonic contractions of particular muscles, result from many various irritations—are often connected with digestive disorder and uterine irritation. Convulsions and spasms more common in childhood, derived from numerous causes; in general, more alarming than imminently dangerous.

VI. *Excretory System.*—Very difficult to assign any *rationale* of the coldness and corrugation of the *skin* in ague, or the generation of so much cutaneous heat in certain fevers—most observable in yellow fever. Rush makes the remark, which is confirmed by my own experience, that a cool moist state of the skin in the disease just mentioned is indicative of great danger. Inordinate sweating the principal circumstance noted in the ancient fatal epidemic called Sudor Anglicanus, as supposed to affect almost exclusively the people of England. The perspiration undergoes changes of quality as well as of quantity, assuming a yellow or brownish hue, becoming acid, and offensive in smell. The skin itself, *suffers* changes of color, being yellow as in jaundice; pale, white, and semi-transparent, as in dropsy; orange, in yellow and bilious fevers, and hepatic disorders, and from intemperance; and livid, mottled and spotted in petechial fevers.

The *urine* was of old regarded with special attention, and the most precise indications of the state of the patient supposed to be drawn from the appearances presented by it. It becomes abundant and limpid in nervous diseases, as in hysteria and some head-

aches, scanty and high colored in fevers, loses its *urea* in diabetes, in one form of which it contains much sugar; deposits sediments of varying color, under circumstances not exactly defined.

Much affected in dropsies—containing varying proportions of albumen and becoming readily coagulable, in many cases.

Strangury—unfavorable in the commencement of fevers, favorable in their advanced stages.

Total suppression, declared by most to be a fatal symptom. I have, however, seen recoveries after it.

The *alvine excretions* offer important observations, in warm climates especially. Much influenced by the state of the liver, as well as of the intestinal canal. Long continued impediment to the process of fæcification, or the remarkable stercoraceous change undergone by the ingesta, always denotes danger. Clay colored stools show torpor of the liver—vitiated secretions of bile color them dark green, and make them offensive and acrimonious. They are black under some particular states of enteric inflammation, as in yellow fever, containing flocculi or granulæ of black color. In dysenteric irritation they are mucous, and bloody, and sanious. A peculiar pink colored, highly offensive ichor, shews instant danger, being occasioned, I believe, by actual gangrene of some portion of the mucous membrane. This may come away, also, in small flakes in the stools—or portions of fibrine or coagulable lymph. In dysentery, we meet also with scybala; these are sometimes described as lumps of hardened fæces, at others as consisting of caseous, or of fatty matter.

In children the stools are often acid and green; at times serous and colorless. Purulent matter may come away from the intestines, either when ulcerated or highly inflamed.

The *countenance* of the patient should be remarked, as expressive of his condition. Any obvious change is unfavorable. The countenance of malignant fever is always notable.

"Risus Sardonicus," described as a grim, sarcastic smile, produced by involuntary contraction of the muscles of the lips and cheeks. The "Hippocratic countenance," consists in hollow, sunken eye, pinched up nose, fallen temples, tense pale forehead, lividness of face; universally, as far as I have observed, the forerunner of death.

The *decubitus* or *posture in bed.*—Inability to lie down is unfavorable—so is confinement on either side—lying on the back with the knees drawn up, and sliding to the most depending part of the bed, shew great debility. Restlessness and jactitation are bad symptoms; it is worst of all when the patient expresses an anxious desire to move from bed to bed, and from one room to another.

Periodicity.—The tendency to periodical revolution is one of the most remarkable phenomena of disease.

Diurnal revolutions observable both in health and disease, as may be noted in the pulse, and in general in all our habits and customs. They are likewise obvious in all fevers—continued, remittent, and intermittent. Continued fevers show some abatement in the morning, and augmentation in the evening. Remittents refer to the types of intermittent with which they are most closely connected. Intermittents have their special hours of access; the quotidian in the morning, the tertian a little before noon, the quartan in the afternoon.

Septenary revolutions are not less clearly distinguishable. The menstruation of the human female occurs regularly on the twenty eighth day—its anticipations and postponements are usually of seven or fourteen days. The relapses of fevers occur at the same periods usually.

The first I attribute to insolation, the influence of the sun. The second in like manner to lunation, the influence of the moon.

The combined influence of the two, liable perhaps to other complications more obscure in their nature, will account for all the types of fever, as well as of crisis, or the agency of critical days.

Certain diseases seem to possess an inherent or independent periodicity, arising from some characteristic peculiarity in their own nature. These are called self-limiting; they can neither be *arrested* in their course, nor *prolonged* by any means known in our art. The exanthemata present the best examples of this order. Small pox, vaccine, measles, and scarlatina, run through a definite course and terminate after a certain duration. The consequences or sequelæ of these diseases, however, depending on lesions of the organs affected in their progress, may be indefinitely protracted.

The true test of a self-limiting disease, is its *spontaneous subsidence* at a determinate and calculable period. Some have confounded illimitable or uncontrollable maladies with the self-limiting. The distinction is easy. We may *protract* an attack of typhus or of pertussis by mismanagement; we cannot add an hour to the duration of measles or small pox, though we may render them more violent and even fatal.

The *condition of convalescence* may be briefly described as one of extreme mobility and susceptibility, modified, however, by the contingencies of the preceding disease in a great diversity of modes, and as requiring the special notice and attention of the practitioner.

MODUS OPERANDI OF MEDICINES.

Medicines have been enumerated among the *causes* of disease; they all produce it in the sound or healthy system, how do they then effect in the sick the restoration of health? There is no such power existing in any known agent, as shall be displayed in the mere production or increase of vitality, or healthy action in an animal body; nor is there any thing in nature, properly deserving the title of antidote, except in reference to its chemical affinities. Medicaments must therefore be useful by an indirect agency; their effect being always modified by, and dependent upon the condition of the recipient.

Therapeutical agents may be arranged under several heads in relation to the mode in which they affect or impress the subject, as follows:—

1st. *Abstraction.*—Darkness, silence, fasting, recumbent posture, cold, the lancet, leeches and cups, cathartics, diuretics, &c. &c.

2d. *Stimulation.*—Wine, alcohol, bark, opium, electricity, heat, &c. &c.

3d. *Revulsion.*—The most important perhaps of therapeutical principles. The use of cathartics in fever, of these and emetics in inflammation, of the lancet, leeches and cups, (as properly under this head, as the first,) of sinapisms, blisters, acupuncture, &c.

4th. *The homœopathic action*, as exemplified in the application of belladonna in scarlatina; of vaccine to prevent or modify

small pox; of emetics to remove nausea, and of cathartics to cure diarrhœa. Yet homœopathists reject altogether, and protest against the doses ordinarily employed by the other schools, and exult in the discovery, that the most beneficent effects can be procured from atoms, or indefinitely minute portions of medicine; exhibiting the thousandth part of a grain, or of a drop of our common drugs.

5th. *The contra-stimulant influence*—exhibited best, perhaps, in the use of very large doses of opium in tetanus, and of antimonials in intestinal spasm. The Italians of the contra-stimulant school, are found in the opposite extreme to the German practice of Hahnemann. They administer boldly, the most enormous quantities of the remedies indicated, with the purpose of combating directly the force of morbid impressions made upon, or morbid action going on in the system.

6th. *The alterative effect*, such as we attribute to mercury, and the metallic preparations generally, to the mineral acids also, and indeed such as may be obtained from a great number of medicines, as guaiac, iodine, camphor, cathartics. By the word alterative, I would mean the substitution of the effect of the medicine, for the effect of the originally acting cause. To be regarded as an alterative, a medicine must be capable of producing then a forcible impression, which may be kept up at will, by its continued exhibition, and which shall readily subside on withholding it. By the combination of these powers, its value is given.

It is doubtful whether the three last modes of action, may not with propriety be all resolved into the form of revulsion.

The modes of administration by which we apply our ordinary remedies, are four, viz. 1st. By the primæ viæ or surface of the alimentary canal. 2d. By the cutaneous surface. 3d. By the pulmonary surface. 4th. By introduction into a vein, or insertion into a wound.

There are besides these, some mechanical, and in a certain sense, chemical remedies, not directly referrible to either of the above heads, as friction, percussion, acupuncture, electricity and galvanism.

Medicaments may act when applied in either of the above modes.—1st. Upon the extremities of the nerves immediately,

and through the sensorial system upon the whole body.—2d. By introduction into the circulation and actual mixture with the mass of fluids.

Instances of the first kind may be found in the *instantaneous* death which follows the swallowing a large quantity of alcohol —the same result is produced by touching the eye or tongue of an animal with strong prussic acid—and in the effects of stimulating volatiles upon the body through the olfactory nerves.

The latter, I believe, is common in the agency of our ordinary medicines. The effects of medicine, introduced into the stomach, are exactly similar or identical with those which they produce when injected into a vein. Opium, dissolved and thrown into a vein, produces sleep and stupor; ipecacuanha vomiting; jalap and castor oil purging; and arsenic more readily brings on gastric inflammation when inserted into a wound, than when swallowed.

It is only on these tissues or systems, the *vascular* and *sensorial*, that medicines can act primarily. They affect the first by actual admixture with the circulatory fluids. They affect the sensorial system by a direct impulse or impression upon the extremities of the nerves, which we do not understand, and cannot describe. They are separable then fairly into two classes, as they affect one or the other of these systems.

Friction, percussion, acupuncture, act upon the nerves directly subjected to their influence. These they irritate, vascular determination ensues, (*ubi irritatio ibi fluxus*,) and thus prove remedial on the principle of revulsion. Acupuncture is maintained by many theorists to owe its efficacy to electric impressions. Electricity and galvanism seem to exert as pervasive an influence over living as upon inanimate matter, and act with wonderful force upon all the solids and fluids of the living body. They are stimulants of high value and general adaptation.

The operation of each and every medicament, is specifically directed upon some particular organ of the body. Besides this specific operation, which it has a tendency to produce under all circumstances, there are other influences which may be derived from it, depending either upon the quantity employed, or upon the condition of the recipient.

1st. *The direct or specific operation of medicines*, we see in the emesis from tartrate of antimony and ipecac; in the sleep and stupor from opium, in the dilatation of the pupil from belladonna, &c. We may even point out more minutely, distinctions as to the modes of effect, when their action is upon the same organ; thus ergot causes the uterus to contract, affecting its fibrous structure; guaiac acts upon the secretory vessels, causing them to pour out their due fluids. Cathartics act variously on the bowels.

2d. *The indirect or consecutive.*—These may, or may not, include

3d. *The poisonous.*

Among the *indirect* effects of medicines, those namely which depend on dose and condition of subject, we may mention the emetic effect of castor oil, of calomel—catharsis from the latter, the diaphoresis from antimonials.

There are some medicines of which we know no *poisonous* effect, properly speaking, as of bark, oleum ricini, calomel, &c.; while others exhibit such an influence, as opium, alcohol, iodine, prussic acid: it is one of the triumphs of our art, to be able to regulate the indirect influences even of these, so as to educe beneficial results.

In regard to the effects of medicines, one important observation should be kept in mind by every practitioner: that certain of the most powerful and valuable articles of the materia medica are *accumulative* in their operation, and thus become dangerous. Thus mercurials shall sometimes, when administered in repeated doses, seem inactive, exhibiting no obvious effects until at once we have ptyalism, ulceration of the lining membrane of the mouth, and caries of the teeth; the system having become, as it were, slowly saturated with it. Thus it is with arsenic, and thus also among others with digitalis. The first shall be given in vain, as it might appear, for some days, when on a sudden there will be pain and disorder of stomach, with great prostration, and swelling of the face and eyelids.

Digitalis will, at times, act neither as diuretic, nor in any other way, until, its administration being persevered in, vertigo comes on, dim vision, intermittent pulse, palpitation, and perhaps coma and convulsions.

PRACTICE OF PHYSIC

OR

THERAPEUTICS.

Some classification and arrangement are essentially necessary to assist the progress of learners in all sciences.

It has been found difficult to agree upon the principles on which diseases shall be arranged.

I prefer to all others the *Physiological Nosology*, which distinguishes the tribes of disease, according to the *seats* which they occupy; the *orders* of parts (or systems) which they affect; the *functions* which they disturb or impede.

I shall treat of them as they affect—

I. The Circulatory organs and their functions.

II. The Digestive.

III. The Respiratory.

IV. The Sensorial. This class nearly coincides with the "Neuroses" of Cullen, Parr, &c.

V. The Motory, comprising the diseases of bones, joints, muscles, tendons, ligaments.

VI. The Generative.

VII. The Excretory, comprehending the cutaneous affections, those of the urinary organs, and the local diseases of the large intestines.

Before attempting the cure of a disease, it is necessary that we should carefully distinguish it from every other; the diagnosis, then, of every case, must be considered separately in this relation.

DISEASES OF THE CIRCULATORY SYSTEM.

The *diseases of the circulatory system* are of paramount importance, and require our earliest attention. Among these, my pur-

pose being chiefly practical, I shall select for consideration such maladies as are in our own country and climate of most frequent occurrence—for example, fevers, hemorrhages, dropsies, scrofula. Yet none of these topics are susceptible of satisfactory discussion, without a previous inquiry into the very extensive and important subject of *inflammation*, which either as cause or effect, as coincident or consequence, is so generally combined with the principal forms of circulatory or vascular disease.

INFLAMMATION.

Its *seat* I suppose to be in the capillary system—the nutrient and secretory arteries, the vasa vasorum. Some however have regarded the fluids, the blood especially, as liable to it; but of this there is no clear proof. Its nature is unknown. There has been much useless argument to establish the uniform and essential contingency of the *increase* or *diminution* of excitement and action, in inflammation. It does not depend upon, nor consist in, *degree* of action; yet, it would seem, that there is always, at least in the first instance, increased action. The smaller vessels, like the heart, are endowed with the power of expansibility—the capacity of active dilatation. We cannot otherwise account for the phenomena; for it is absurd to suppose the heart or larger vessels capable of elective propulsion or determination of blood to any particular part of the body. The minute vessels then expand in the production of inflammation, as they do in blushing, redness from friction and stimulants; but there is some superadded essential condition, or blushing would be inflammation.

There are two conditions or states of a part, which precede or give rise to inflammation. The most common is *irritation*—a term which implies organic excitement of the nerves of the part, and has been used by some pathologists as synonymous with inflammation. The second is *congestion*—where there has been, from whatever cause, an undue proportion of the sanguineous fluid forced into the structure of any organ thus engorged, or unnaturally distended—as in inflammation of the liver, spleen, and other internal viscera, from the concussions of intermittent fever, or the shock of cold applied to the surface. It is almost

superfluous to remark, however, that neither of these is of necessity followed by inflammation. The internal organ may disgorge itself and return to a natural condition; the irritated part may be soothed into tranquillity without any exhibition of vascular excitement; or this may be so temporary and transient, as not to deserve the name of inflammation. The redness from slight friction on the surface, or from acupuncture, is not inflammatory, any more than the vascular excitement of the whole system from wine or exercise, is properly fever.

All inflammation is in nature *morbid*, as we know both from the symptoms and the results. Surgeons recognize a healthy inflammation, but the phrase is rude and unscientific. Union of opposite surfaces, by the organization of effused lymph or fibrin, is made incidentally useful in surgical operations, as for the cure of hydrocele, artificial anus, &c; but can no more be called healthy inflammation, than that which unites the pleura costalis with the pleura pulmonalis, indeed they are absolutely identical. Union by the first intention, has been attributed to inflammation, but incorrectly. The vessels of divided surfaces are placed in apposition, so that circulation goes on, and among the other functions, restoration is effected by the deposit of nutritious matter from the vessels. A finger or piece of flesh, *cut off* and replaced, sometimes adheres. But in this case, *union must precede inflammation*, or only one surface can inflame. Indeed inflammation impedes the occurrence of union by first intention. It occurs always to a certain extent no doubt, but merely as a coincident effect of the violence applied to a living body. Inflammation was formerly attributed to spasm of the vessels, *error loci* of part of the blood, lentor, or inspissation of that fluid. It is probable that spasm of the excited vessels does take place; that is, that they act more or less irregularly or convulsively, when thus irritated. *Error loci* we know to exist, for the red globules are seen in vessels which did not previously admit them; but this is an effect or consequence of inflammation, rather than a cause. There is no proof of lentor or inspissation of the blood. The circulation in the part, so far as we know, is not obstructed, notably, that is, not essentially, or of course. There may be

obstruction from swelling, or effusion, or morbid depositions in certain cases, but this does not uniformly happen.

The general symptoms of inflammation are the same, whether its seat be internal or external—pain, redness, swelling, heat, throbbing. The *pain* differs in kind and degree, according to the structure of the part affected, its sensibility, and the general sensibility of the patient. It is in proportion to the suddenness and extent of the changes which take place, being of course greater in acute than chronic cases. It results probably, from the excitement of the minute vessels, which by their dilatation, produce tension and pressure on the nerves.

The *redness* and *swelling* are easily accounted for by reference to the vascular fullness and determination which exist. The *heat* of the part is somewhat heightened, as depending on the vascularity of the part, and the force and fullness of local circulation. It never can be higher than the heat of the interior of the body, and is most notably increased at the farthest point from the heart. *Throbbing* results from the admission of a forcible current, impelled by the heart into vessels which were before too small to admit of such impulse, or which have spontaneously dilated to receive it.

The *local effects* of inflammation are modified by the structure of the part in which it occurs, and by the nature of the cause which has produced it. In illustration of the first, we may refer to what are called the terminations of inflammation of the serious tissue; these are most commonly adhesion and dropsy, sometimes purulent effusion—rarely ulceration. In inflammation of the mucous tissue, we have very commonly purulent secretions and ulceration—rarely adhesion, &c. In the skin, erysipelas and phlegmon; in parenchymatous masses, abscess and schirrhus. The modifications from cause, are still more marked and precise. In certain predispositions we have arthritis, cancer &c.—each peculiar. From certain morbid agents, we have specific modes of inflammation, as upon the application of arsenic, tartrate of antimony, lytta, &c. Sphacelation seems to be determined, for the most part, by the *intensity* of the morbid excitement, rather than the *nature* of the cause. It may be defined as a species of disorganization, of which death is a necessary consequence. Dis-

organizations are effected (as in scrofulous and schirrhous degeneration) without depriving the part of its vitality, and death may occur without disorganization. Sphacelus implies a union of the two circumstances.

Inflammation may or may not be attended with the excitement of *general febrile disorder.* After wounds and injuries, especially in vitiated constitutions, and at an interval ~~undermining~~ and varying, fever is apt to come on with shivering or without it, the skin becoming hot and dry, the pulse hard, frequent and quick, the face flushed, and the eyes red, with headache and perhaps delirium. This is one of the types of symptomatic fever, assuming a continued form, that is, without intermission or regular and definite remission; it is closely analagous to, if not identical with, the febrile derangement, connected with the long list of internal inflammatory diseases, hence called Pyrectic, as pleurisy, gastritis, &c. In these latter, the fever supervenes usually with great promptness soon after the invasion of the disease. Hectic, the second of the types of symptomatic fever, is intermittent, and attends protracted inflammation, both internal and external. It shall receive special notice hereafter.

In the general treatment of inflammation, we refer to *three* modes of remedial management.

1. By abstraction of excitement, venesection, leeches, cold, low diet, purgatives, emetics, nauseants &c.

It is under this head chiefly, that I would include the agency of *opium* as a remedy for inflammation. The first step in the lighting up of inflammatory disease is, often a mere irritation, which is capable of being entirely subdued by the anodyne and soothing influences of this most valuable drug. In its farther progress too, inflammation is liable to be aggravated by pain, which is the result of morbid excitement of the nerves of a part; and this can often be allayed promptly and entirely by opiates. The state of sleep which they so admirably induce, is singularly adapted to promote the subsidence of all undue actions of any of the organs, and especially of the brain, whose agitation readily disorders every fibre of the system, and whose restored tranquillity is so often the harbinger of general repose.

From opium also, we may obtain, by proper management of its indirect operations, very great benefit as a diaphoretic, and as a most impressive stimulant, but these effects are referred to under the following heads:

2. Revulsion, as by venesection; purgatives, diaphoretics, stimulants, sinapisms, epispastics, &c.

3. By alterative influence, as in the mercurial treatment, and in the substitution of a new and transient form of inflammation, as when we apply a blister to erysipelatous surfaces, arsenic to a cancerous ulcer, and stimulants generally to indolent ulcers and chronic inflammations. In strict propriety, perhaps these are but modes of revulsive affection.

FEVER.

The phenomena of fever, prove the co-existence of two prominent conditions in both the vascular and sensorial systems. There is evident concurrence in each of

1. Diminished energy—defective power, with
2. Undue action—morbid excitement.

This latter expression implies that with the diminution of the amount of power, there is irregular distribution of the remaining power.

The combination of these elements, perhaps in varying proportion in different cases, forms the *proximate cause of fever.*

It is probable that the earliest disturbance occurs in the extreme vessels, the nutrient, and secretory, and excretory, denominated the *capillary system*, but this is little better than conjecture.

There are doubtless cases of fever—nay, perhaps classes of cases—which seem to impugn the correctness of this statement; where the vascular actions are enfeebled, and the sensorial organs excited, or both prostrated at once and intensely. With regard to such instances it may be observed that however numerous, they constitute, after all, mere exceptions to the general rule; no disease being so liable as fever, to be modified both by the condition of the individual whom it affects, and the circumstances which may attend its production and spread.

Farther, I cannot regard the true pathology of any disease, as a mere question of less or more, plus or minus, power or excitement. There is always something beyond this. There is disorder in the mode of performance of function—delirium, depraved sensation, undue dejection, or exhilaration in the sensorial system. In the vascular, early vitiation of secretions, and as Stevens maintains, a morbid change in the blood itself.

Fevers are properly divided into Idiopathic and Symptomatic. The distinction intended, is generally recognized in marked cases, as when we refer on the one hand to fever from local injury, succeeded by inflammation, and on the other, to the regular recurrence of an habitual quartan. Certain intermediate instances are often dwelt on, in which the peculiarities of these classes are much softened down, as in pleurisy, dysentery &c. The best definition therefore, which can be offered, is that which connects symptomatic fever essentially, with some *obvious*, *regular* and *early local inflammation*, idiopathic fevers being such as do not shew distinctly any such connection. The latter head will then comprise intermittents, with the exception of hectic; remittents generally, and among the continued fevers, typhus, catarrhal fever and pneumonia typhoides. Examples of the true symptomatic fever, are given in pleuritis, hepatitis, phrenitis, gastritis, enteritis, the exanthemata &c., with the inflammatory fever which occurs immediately after a severe injury, and the irritative or hectic, which comes on later. Most of the above are, however, arranged in preference according to the *locality* of their *characteristic* phenomena, as phrenitis, &c., and the exanthemata.

It has been much disputed, whether the first step in the formation of fever is the production of debility, or of irritation. The true nature of *incipient* febrile action, is unknown. Many of the *remote causes* of fever, it is true, are of a stimulant, or irritating, or exciting quality, but not all. Typhus, the "famine fever" of Ireland, is the result of agents of opposite tendency, and large losses of blood are very apt to be followed by fever.

Cullen's definition of fever examined. Fevers do not always *begin* with a *cold stage*. When they have so commenced, the animal *heat* of the surface is not always *augmented*. The *frequency* of the pulse is sometimes *diminished*.

Nothing is more strongly characteristic of fever, than the general *diminution* and *depravation* of the *secretions* of all the surfaces and glands; hence the thirst, the clammy mouth, the furred tongue, nauseated stomach, constipated bowels, harsh dry skin, paucity of urine, which is high colored, &c.

The ancient notion of the tendency of fever to run a certain course and subside spontaneously, is fallacious and must not be depended on. The congestions and inflammatory determinations which belong to the history of fever, tend on the contrary to the production of organic changes in the tissues, which, reacting, keep up fever, and prostrate the constitution. Hence, as these irritations, congestions and inflammations are at least in a certain measure controllable by proper remedies, we must class fever among curable diseases. Not only in this way, indeed, is it removed, but we occasionally see it cut short by impressive measures, which relieve the system of it suddenly and at once, as venesection, the cold bath, emetics, cathartics, mercurials, &c. The perturbing methods of treatment are therefore preferable in their general results to the expectorant management of fever.

The doctrine of critical days requires notice. Crisis is defined as a sudden and notable change, occurring spontaneously in the course of fever, and exhibiting a remarkable influence on its character and termination. The change may be either favorable or otherwise. The question is, whether these changes are to be expected on certain calculable days. These days, if we collate the writings of the principal and most zealous supporters of the doctrine, are the 3d, 4th, 5th, 6th, 7th, 9th, 11th, 13th, 14th, 15th, 17th, 20th, and 21st—thirteen days in twenty-one; the non-critical days are the 8th, 10th, 12th, 16th, 18th, and 19th—six in number. We cannot wonder then, if, as is asserted, a majority of crises do occur on the so-called critical days. The regular observance of the *types* of fevers, all which refer originally to the intermittent form, however obscurely, I think, has been the cause of the belief in critical days.

The diurnal and septenary revolutions have been spoken of; to the combined influence of these, I attribute the types of fever. *Continued* fevers usually have reference to the quotidian intermittent; *remittents* to the tertian, with its modifications, double

and triple, and perhaps sometimes to the quartan. Remittents when they become *obscurely remittent* by protraction, running, as the phrase is, into a continued type, exhibit in a still indistinct way, this reference to intermittent type, and these imperfectly marked references have been called *crises.*

The *remote causes of fever* shall be enumerated under each specific head.

The *effects* of fever, the local derangements developed during its progress, and displayed in post-mortem examinations, vary both with predisposition and exciting causes.

The brain, in its substance and upon the membranes which envelope it, shows vascular engorgement, and sometimes the results of inflammation.

The mucous membrane of the stomach and intestines, suffers various lesions from similar inflammatory determination, and other modes of derangement.

The pleura and peritoneum are also attacked—the lungs and the mucous lining of the trachea. The liver, especially in warm climates, is often notably altered in appearance, being increased in size, in weight, &c. &c.

These local affections are not necessarily inflammatory; they are congestive, perhaps, as often.

In Crampton's account of a Dublin epidemic, the following estimate is given, of the relative proportion in which the organs were altered in condition, or had undergone notable lesion. Out of 755 cases, 76 were of the abdominal viscera, 129 of the chest, 550 of the head. Similar tables are presented us by Tweedie and other British physicians. Among us, owing to influences of climate and determinations thereby given, the proportions would be reversed. Here the abdominal viscera are chiefly affected, (the stomach, intestines and liver,) next the head, lastly the chest. I believe the former never escape derangement in the warm months.

Fevers divided into *Intermittent*, *Remittent*, and *Continued.* These types are fairly distinguishable, although there are cases in which the distinctive marks are very slight.

An *Intermittent* presents repeated paroxysms of fever, with intervals between of absence or apyrexia.

A *Remittent* is characterized by *notable* and *regular* exacerbations, and diminutions of febrile excitement, there being no complete apyrexia, but an observable approach to that state.

A *Continued* fever is so denominated when there is no notable or prominent difference at regular periods in the degree of febrile intensity. The influence of diurnal revolution, is however, generally observable, there being slight morning remissions, and evening exacerbations.

OF INTERMITTENTS.

Intermittents assume various *types*, according to the periods they occupy. They are divided into three *stages*—the cold, the hot, and the sweating. The whole time from the commencement of the cold stage of one paroxysm, to the commencement of another, including the apyrexia, is technically styled the period of an intermittent.

1. The Quotidian occupies 24 hours in this way, returning daily.
2. The Tertian 48, returning every second day.
3. The Quartan 72, returning every third day.

Each of these has its usual hour of access, and its relative duration and violence of stages. The quotidian comes on in the morning, has the shortest cold stage, but the longest exacerbation or febrile excitement, continuing about eighteen hours; its apyrectic interval about six.

The tertian comes on about or a little before noon, duration about twelve hours; its interval is long.

The quartan attacks in the afternoon, with the longest cold stage has the shortest duration; continues seldom more than nine hours.

These are the original types, which are variously complicated; we have the *double tertian*, the attacks on alternate days corresponding in time of access, violence, duration, &c.; the *triple tertian*, two paroxysms on one day, and one on the alternate; the *double quartan* and the *triple quartan* are also mentioned.

The *paroxysm of an intermittent* described. The *cold stage* marked by the following symptoms—languor, muscular feeble-

ness, yawning, stretching, sighing, paleness of the face, with lividity of the lips and ends of the fingers, shrunken countenance with cutis anserina, a sense of chilliness increasing to violent trembling and shiverings of the whole body, uneasiness at stomach, amounting to nausea sometimes, and vomiting. Pain in the head, and over the back and limbs, pulse small, and feeble, and quick.

Hot stage.—The chills alternate with flushes of heat, gradually pervading the whole surface, which is glowing and dry, pains in the head and limbs increase, with turgidness of the face and eyes, vomiting goes on, and bilious matter is thrown up mixed with mucus and other contents of the stomach; there is thirst, and the pulse has become frequent, full, and hard.

Sweating stage.—After some time a moisture is felt upon the forehead, breast, and arms, which progressively extends over the whole body, and the sweat flowing freely, the symptoms above enumerated go off, leaving the patient more or less exhausted.

Masked or disguised intermittents present, instead of the above regular succession of phenomena, some single symptom of great intensity, occasioned by morbid determination to, or affection of some part, as of the eye, the stomach, the brain, &c. We distinguish these by their periodical recurrence and regular abatement, and the previous exposure of the subject to the causes of intermittents. As to the nature of these "masked cases," (so called,) I entertain some doubt, however. Periodicity is so frequent an attribute of disease, that we need not refer it to any supposed connection with intermittent fever or its causes.

Causes of intermittents.—Malaria the principal. Said also to arise from alternations of temperature, moist clothing, fatigue, &c.; but such instances must be very rare.

General prognosis.—Favorable, allowance being made for their obstinate tendency to recur, the season of the year—vernal being more easily curable than autumnal attacks—and climate. In hot and moist countries, as on the coast of Africa, intermittents put on often a malignant and fatal character, and in very damp districts of more northern latitudes, as in Holland and England, (Lincolnshire,) though less immediately destructive, they are tenacious and sometimes fatal.

Special prognosis.—Favorable, mildness of symptoms, postponement of time of access, completeness of apyrexia. *Unfavorable*, extraordinary violence, anticipation of period of access, unpleasant feelings and uneasiness during apyrexia, coma in cold stage, with difficult breathing, delirium in hot stage, great prostration of strength during the sweating stage, or at the subsidence of the paroxysm.

Effects of intermittents. Patients sometimes die in the cold stage, from congestive determination to vital organs, the brain and lungs; they may sink exhausted (though this is rare) at the close of the sweating stage, or when the vomiting has been severe. Enlargements of the liver and spleen are the most common consequences of the protraction of intermittents; these may be either indolent or inflammatory; dropsies, jaundice, hepatitis, dysentery, may also be mentioned here.

Treatment of intermittents. During the cold stage, external heat to the extremities and general surface, and sinapisms should be assiduously applied. If the stomach be oppressed, a quick emetic may be given. The tourniquet has been applied to the limbs by Kellie. The lancet has been used of late freely by McIntosh and others. Its effect doubtful, if not dangerous. Opium is of all our remedies most generally useful, and is capable both of preventing and cutting short a paroxysm, when given in full dose with sufficient promptness. If the chill be severe and prolonged, in a debilitated subject, we may combine it with camphor, piperine, capsicum, and other stimulants.

During the hot stage, if special determination to the head be present in robust subjects, the lancet may be used; cold affusion to the head, and the cold bath employed with advantage; a cathartic may be given; diaphoretics, assisted with cooling drinks.

In *intermittents of malignant* character, the symptoms of overwhelming congestion and of typhoid prostration, must be met by a resort to stimulants of the highest power—sinapisms and other modes of external irritation, brandy, ether, and laudanum internally, in no timid doses. The stimulating diaphoretics, camphor, and the volatile alkali, with hot wine whey, and stimulating enemata, are also of use here.

During the intermission.—Cinchona is our most important remedy. The only objection to its employment consists in the inflammatory determination kept up sometimes to some organ, as the liver, spleen, stomach, lungs, brain. This being subdued, it should be freely resorted to. It is given in substance, in infusion, tincture, and extract. The *sulphate of quinine*, prepared from it, is a medicine of inestimable value, on account of the concentration of valuable tonic powers; dose, one to three grains, every two or three hours. Larger quantities excite the stomach and determine to the head, and are in ordinary cases unnecessary; but we meet with instances of obstinate protraction, in which we may administer with the best effect very free doses, as from three to twenty grains.

Piperine shows its best influence in combination with quinine. It is too much a stimulant to be used throughout the apyrexia, but may be added with much advantage to the dose of quinine, just before the paroxysm is expected. It forms thus a very useful combination.

Narcotine, or rather the muriate of narcotine, is highly eulogized by O'Shaughnessy and other East Indian physicians. I have found it, like quinine, very useful in a long list of maladies recurrent periodically.

Serpentaria—not valuable alone, but useful in combination with cinchona.

Sulphur—second only to bark in the cure of intermittents, and particularly serviceable, as it may be given when bark ought not, in cases of imperfect apyrexia. Is well applied in all masked intermittents—when mingled with cinchona, forms an impressive combination.

The *carbonate* and *prussiate* of iron, and the sulphate of zinc, are highly recommended.

Arsenic—a very powerful remedy; it should be cautiously administered; best adapted to the more obstinate chronic habitual forms of intermittent.

The above means failing, the patient should be subjected to a mild mercurial treatment, or sent to take a long journey, or a sea voyage.

REMITTENTS.

BILIOUS REMITTENT FEVER.

Belongs especially to warm climates; produced almost exclusively by malaria, aided by the occasional or exciting causes formerly enumerated, heat and alternations of temperature, moisture, &c. Strangers from cold countries, or from upland districts, are predisposed to its more violent forms, and should carefully avoid the adjuvant agencies which bring it on or aggravate it—should live temperately, but not abstemiously—shun extremes of temperature, dampness, dews, night air, &c. Blood-letting, purgatives, and mercurials, objected to as prophylactics. They predispose by reducing the system and rendering it susceptible.

Symptoms.—Commences sometimes with, and often without, a rigor or chill; then follow languor and weariness—gastric uneasiness—pains in the head, back, and limbs—skin becomes hot and dry—pulse full and bounding, and abrupt and frequent—restlessness—vomiting—thirst—tongue at first white and lightly coated; soon covered with a thick yellow or brown fur; its edges red and indented, as if swollen and pressed against the teeth. Bowels constipated—stools, when obtained, greenish and acrid. The exacerbation continues about twelve to eighteen hours.

Remission or abatement of symptoms, then takes place in a greater or less degree. The return of exacerbation refers to the tertian period of access, at or a little before noon—observing the double tertian type in the correspondence of alternate days. Cases not unfrequently occur bearing analogy to the triple tertian, when we have on one day *two* exacerbations, and on the next *one.* In the exacerbation, if the disease is not checked, the vomiting becomes more frequent—there is heat at the epigastrium, and pain on pressure—the headache is intolerable—the eyes cannot bear the light. The tongue is dark brown, black along its central line—dries, is chapped or cracked. The bowels are costive, or the stools thin and watery. Respiration is more and more embarrassed with sighing—restlessness—the pulse sinks, becoming small and feeble. There is great prostration, with muscular

twitchings; the fatal termination occurs in from seven to thirteen days—average about nine.

Typhoid state or stage.—After many repeated exacerbations, the patient sinks sometimes into a condition thus designated, in which the symptoms resemble those of typhus. This more frequently happens among old residents, the termination taking place more promptly (whether favorably or otherwise) in youth and strangers. The disease may be, in this modified form, prolonged to thirty and thirty five days; average fifteen or twenty.

Malignant remittent.—The skin cold and clammy; countenance pale, and livid, and shrunk; pulse frequent and fluttering; low delirium or stupor; syncope; sometimes painful local affections of the head, stomach, or bowels. Fatal rapidity in many cases, one or two exacerbations destroying the patient.

General prognosis in bilious remittent, favorable. Proportion of deaths throughout the south and west, as small as in any part of the world. In our own city, not more than one in thirty or forty, perhaps even less.

Individual prognosis.—Favorable when the remissions are distinct and prolonged, with tranquil sleep and sweating; if the bowels are moved easily and the evacuations assume fæcal appearance and quality; if the stomach become quieter and the tongue cleaner and less red.

Unfavorable when the remission is imperfect and short, when the stomach is specially irritable, when there is much wandering of mind or delirium; inordinate frequency of pulse is a bad symptom—recoveries are rare when it transcends 130 or 140; so are great tenderness of epigastrium or tympanitic swelling, with or without vomiting, obstinacy of intestines, laborious breathing, coma, subsultus, fatuity.

There is considerable liability to relapse. This is to be dreaded when digestion is weak, tongue furred or red, bowels irregular; occurs more frequently on the 7th or 14th day.

Effects of remittents.—If the patient continues to reside in a malaria district, remittents often run into intermittents of great tenacity. Both in this way and more immediately, they are apt to give rise to jaundice, dyspepsia—pulmonary complaints, when there is predisposition—enlargements of liver and spleen, hepatitis, splenitis, dropsies.

Necrotomy.—The vessels of the brain and its membranes are found engorged; those of the *gastro-enteric mucous membrane*, in similar condition. The spleen and liver enlarged, discolored, full of dark blood, heavy, indurated sometimes, at others softened and brittle. The bile discolored and vitiated, tenacious, flocculent, granulated.

Treatment.—The first indication, both in point of importance and time, is the reduction of the *force* of morbid excitement, as directed upon particular organs or parts. This may be effected by the following means:

Venesection.—Not a general remedy. Adapted to cases of robust, plethoric strangers; to cases also, in which at the invasion, or during the early stages of the attack, the *local determinations* are specially *violent and painful*, as when there is delirium or mania, or coma, or great epigastric tenderness, &c. When resorted to, should be employed freely, the blood being permitted to flow until the pulse yields. And in precisely the same cases, local blood-letting by cups and leeches, will be found useful after venesection.

Cold bath.—May be considered a general remedy. Contra-indicated by feebleness from age, or other circumstances, by a moist skin, by chilliness. Forbidden also by determination to the lungs, and by the presence of diarrhœa. Should not be repeated if it produces a continued sense of coolness. Affusion preferable—next immersion. Its remedial value cannot be exaggerated.

Emetics.—Not often called for. If the stomach be oppressed, with imperfect vomiting, may be useful both by cleansing it, and by determining to the skin and bowels. Should be abstained from if there is pain at the epigastrium, increased on pressure. The antimonials are in general preferred.

Cathartics.—Absolutely necessary in the treatment of fever. Great care must be taken to choose the least irritating and most efficient. I would avoid the combination so generally used in the southern country in domestic practice, and on plantations, of drastic purgatives with harsh emetics. I would select such articles as cause least nausea or griping. Calomel, pulv. rhei, and the Epsom salt, may be given so combined and alternated, as to

produce all the good effects which we can hope for, from the evacuation of the bowels, and the disgorgement of the liver, and other abdominal viscera; and may be prescribed in such doses, and at such intervals, as to keep up a permanent and highly salutary determination to the intestinal canal. But it is not necessary to persevere in what is termed active purging; and if the bowels yield readily, we should discontinue the exhibition of cathartics. Much harm may be done by urging their use too far, especially if there be much nausea and vomiting, with great epigastric tenderness, and the stools are frequent and small and mucous, and attended with pain, or griping, or faintness, or vomiting. Yet, on the other hand, it is an error more mischievous, to neglect entirely this very valuable class of medicines, and to leave the patient to suffer all the unmitigated evils of abdominal congestion and engorgement, and the irritation of accumulated morbid secretions in the alvine canal.

The mucous intestinal surface, is one to which revulsive determination may be excited very safely, and to the great relief of more important and delicate organs. Its secretions may be increased to such an amount too, without any injurious consequences, as to form a very impressive means of depletion.

Diaphoretics may be administered in union or alternately with cathartics. The saline and sedative are at first to be chosen, as the nitrate of potassa with infus. rad. serp., acetate or citrate of potassa, acetate of ammonia, and nitrous ether. The use of these means should be continued through the *remission* and so timed as to produce their fullest effect just at the period of exacerbation —the room being kept dark, cool, silent, and well ventilated, and cool drinks and ice allowed. The *vapor bath* is a good adjuvant to diaphoretics, internally administered.

If the exacerbation be often repeated, and your patient's strength seem about to yield, resort to the stimulating diaphoretics—camphor, the volatile alkali, tinct. opii camph., with infus. rad. serp. et cinchonæ. His drinks may be stimulating and nutritious, as arrow root, with wine whey, &c.

Epispastics should be used as well for their stimulant, as their revulsive influences.

When stimulants become necessary, such must be chosen as shall least irritate the stomach. Of these capsicum and spts. terebinth. are ascertained to be the most generally admissible. Under such circumstances the tinct. canthárid. may be occasionally used with advantage. By giving rise to inflammatory irritation of the urinary organs, it acts both as revulsive and generally excitant.

The *irritability of stomach* in bilious remittent, is one of the most embarrassing symptoms. It may at first arise from the presence of crude or improper ingesta, and afterwards be kept up by the undue accumulation of vitiated secretions; under these circumstances an emetic or a repetition of emetics will be called for; but this is very rarely necessary. If connected with inflammatory affection of the stomach, as shown by heat there, and pain increased on pressure and motion, resort must be had at once to the *mercurial treatment*, our best hopes of relief—in the mean time applying an epispastic without delay. If of ordinary violence and duration, it does injury chiefly perhaps by preventing the exhibition of such medicines as the condition of the patient may seem to call for. It is improper here, as is often done, to urge the organ by a great diversity of prescriptions. It will be best to desist awhile from all such efforts, while we employ external means only, such as leeches or cups, fomentations and sinapisms. Laxative enemata may be administered to determine to the bowels. Among the remedies most in use for the relief of this gastric irritation, are soda water, the effervescing draught, lime water, with or without milk, the capsicum pill, small doses of anodynes, both by the mouth and rectum, and endermic applications of opium and morphine.

Constipation is another troublesome attendant. If it presents itself while the pulse is full and hard, and the strength good—bleed freely and to relaxation. Dash cold water on the legs and abdomen, give purgative glysters, administer large quantities of fluid in this way, by De Haen's or other proper apparatus. Do not hope to overcome it by increasing the dose of cathartics—you may thus destroy the stomach. Vary them, using the mildest and least offensive.

Hiccup in the latter stages is very harassing. I have seen it continue three, five, and nine days, and yet the patient recover; combat it by musk, opium, and the volatile oils.

The *mercurial treatment* must be resorted to, if the attack be malignant or specially violent; if the patient be feeble or cachectic, or in bad health previously to his seizure; if the disorders of the place or season be unfavorable—in Sydenham's language, if the epidemic constitution of the air be bad; if the case be unusually protracted, or run into the typhoid state. The dose should be proportioned in frequency and amount to the exigency of circumstances, from two to ten grains every two or three hours, until the symptoms of incipient ptyalism shew themselves. Calomel thus employed does not interfere with any of the other remedies indicated. The objections to this mode of treatment discussed and answered. Its occasional inefficacy acknowledged; its evils of use as well as of abuse described. That it implies some suffering, and perhaps some risk, will not be denied, but these should be compared or contrasted with the probability of the fatal termination which it so often averts. Confessed to be attended with much uncertainty in the case of young children; advised therefore that in such subjects, dependence be placed on the other remedial measures already suggested.

Country Fever.—In this city we meet often with a very insidious and dangerous modification of bilious remittent, originating in transient exposure to the intensely concentrated malaria of our low country, as by sleeping a night or more upon a plantation after the frosts of spring have ceased. Observation shows that such an attack is attended with peculiar hazard, and the return to our city atmosphere is universally believed to endow it with special malignity. The progress of the case is irregular, the remissions uncertain both in degree, time of occurrence, and duration. The type exceedingly complicated, obscure and confused. A like aggravation of the endemic remittents of the far west, is said to result from similar removal to the healthy uplands, from low miasmatic spots, during the *latent period*, and before the febrile influences of malaria have developed themselves in the system.

The prognosis, unfavorable—proportional mortality very great. Safest to treat such cases, however mildly they may commence, as of the worst kind. My usual resort is to the mercurial treatment, eagerly employing the first well marked remission to give the bark, either in infusion, or the sulphate of quinine.

It has been mentioned that our remittent runs occasionally into a typhoid state. It is sometimes from the very beginning of a typhoid character; these are called congestive cases, and have been described as "malignant." In the first stage of such attacks, the hot bath, (110° to 120° Fahrenheit,) should be employed, and sinapisms applied extensively, the bowels moved and excited by stimulating enemata; and the stimulating diaphoretics, either combined or alternated with calomel in full doses. In some instances of this nature the most energetic and persevering use of stimulants is demanded; among these a fair and free trial seems to be due to the spts. terebinth.

During the convalescence, attention is necessary to prevent relapse or recurrence of fever. The bowels must be kept soluble, though active purging is not admissible. Of tonics, the sulphate of quinine, the chalybeate preparations, and the elixir vitriol are preferable.

The exercises of gestation, at first in a carriage or boat, afterwards on horseback, are however, the best tonics. The diet must be carefully regulated as to quantity; its quality may be determined by reference to the patient's habits of living.

A slow or chronic irritative fever continuing to harass the patient, evinces the existence of some visceral obstruction or inflammation of obscure character. The blue pill, in small dose nightly, combined with Dover's powder or some other preparation of opium, in such quantity as to produce a gentle anodyne effect, will probably give relief. In the mean time the diet should be very light, and prudent avoidance of every excess or exposure enjoined.

The mercurial sore mouth may be washed with some astringent gargle, as the sulph. zinci, accet. plumbi, or alum, the mineral acids, infus. cinchonæ. After all the means proposed however, there is much need of patience on the part of the sufferer, as it is slow of subsidence under any mode of management.

BOSTON MEDICAL
JUL 2 1918

REMITTENT OF CHILDREN.

Infantile Remittent—*olim, Worm Fever.*—Attacks between the third and twelfth year. Begins with irregularity of appetite, furred tongue, offensive breath; the nights are restless and wakeful, the skin being then hot and dry, with much thirst and headache, the pulse frequent and jerking; the child starts frequently in its sleep, and grinds the teeth; the bowels are costive, or irregular, with loose acrid stools. As the disease progresses, the abdominal disorder becomes more and more prominent, the belly is hard and tumid, the face and feet are puffed and edematous—there is loss of strength—a light delirium is present, with screaming at intervals, or there are stupor and coma; convulsions supervene and death soon follows.

The disease is ranked among the remittents on account of the *distinctness* of abatement of febrile symptoms, alternating with obvious exacerbations. The *period* of remission is not regular. The exacerbation comes on sometimes about noon, but most usually at night; its general duration is from nine to twelve hours.

Causes.—Infantile remittent may arise from any derangement of the digestive system, at the age above specified, costiveness allowed to become habitual, the use of unripe or decayed fruit, unwholesome diet generally, want of cleanliness of person, or of ventilation, especially in the sleeping room. It is sometimes produced by the irritation of worms—lumbrici—present in undue number in the intestines.

Prognosis, generally favorable. Signs of danger are such symptoms as betoken special derangement of the sensorial function, great restlessness, delirium, coma, subsultus tendinum, convulsions, strabismus, dyspnœa.

Treatment.—Our principal remedy is the purgative, which must be administered freely. Calomel is necessary, combined best with castor oil or rhubarb. The neutral salts may not be trusted to alone.

The tepid bath is highly useful in general, sinapisms if there is much local determination, cold affusion, if the head is affected,

upon that part; anodyne, mucilaginous enemata, if the bowels be loose and irritable.

If worms are ascertained to be present, combine some *anthelmintic* with the cathartic means—spigelia (the efficacy of which is not however confined to its vermifuge property) melia azedarach, turpentine or camphor. The infusion rad. serp. et cinchon., with some alkali, should be given as soon as an intermission of fever occurs, or even in good and distinct remissions.

CONTINUED FEVERS.

YELLOW FEVER.

Its nature, history, and type much disputed. It is a *distinct form of continued fever*—not to be confounded with typhus on the one hand, nor with bilious remittent on the other. It is an *endemic* of the region we inhabit. It consists specifically of a *single paroxysm*, which whether long or short is never repeated.

The *cause* of yellow fever is peculiar, and exceedingly obscure. No successful effort has yet been made to designate it, nor even, as it seems to me, any plausible conjecture offered on the subject.

For its production the following conditions are demanded:

1. *Heat.*—Some have asserted with precision, that it will not prevail when the temperature is below eighty degrees Fahrenheit; but this is not made out.

2. *Moisture.*—It certainly is most apt to arise in wet summers, though to this rule also there are exceptions. When it commenced among us in 1828, the season had been unprecedentedly dry.

3. *Malaria.*—It is met with chiefly in malarious situations. But malaria alone, or merely aided by heat and moisture, is not capable of generating it, or it would reign annually over our lower and middle country, where bilious remittents abound.

4. A fourth condition is then essential to its generation; this consists in the peculiar circumstances *of a city atmosphere*—the state depending upon a *crowding* together of *human habitations.* Yellow fever is the disease of cities and towns, not of villages and country places. In the apparent exceptions of its prevalence

in ships at sea, and in marine and other hospitals, as at Onrust and Edam, we still have all the conditions above specified.

The nature of this last essential cause is unknown. Its mode of action is probably twofold—both upon the bodies subjected to its influence, in which it creates predisposition, and also may give development to the attack; and upon the air with which it may be mixed, contaminating it, and assimilating it to its own impure poisonous state. Yellow fever almost always commences at some foul wharf or ship, or in some ill-ventilated lane or alley—whence, as a centre, it spreads in all directions.

Yet these influences, however much they may *conduce* to the generation and spread of yellow fever, are by no means capable in themselves of creating it. Its existence is confined to well known localities, beyond which, it makes excursions or extends itself occasionally. It is unknown in many regions where all the foregoing conditions of heat, moisture, malaria and density of population are found, as in Canton, Calcutta, Cairo and Constantinople. The essential generating cause of yellow fever then, which exists in Havana and Vera Cruz, and does not exist in other cities where the temperature is as high and the air apparently quite as impure, is hitherto undetected. That it is communicable both by the transportation of infected atmosphere in a foul ship, by ordinary fomites, and by actual contagious dissemination from the bodies of the sick, is to say the least probable, and the evidence in support of this opinion, is every day accumulating and gaining strength.

In the hot climates in which it occurs, the natives of cities subject to its invasion enjoy the privilege of exemption from its attack. In the West Indies and New Orleans, this immunity is perfect; in Charleston nearly so. In colder climates and northern cities, the case is far otherwise; all are alike and equally liable to it. The following suggestion is offered to explain this circumstance. The influences of climate, heat, and cold, are opposed or contrasted in their effect on the human constitution. The southerner retains from summer to summer the habitudes generated by the agencies of heat, as his winters are neither intense or permanent enough to alter these habitudes. The northern man, on the other hand, is continually undergoing the

alternate affections of two climates—his summers, though shorter, being as hot as they are in low latitudes, and his winters colder, and much longer.

No attack of any other endemic form of fever, as bilious remittent, tends to destroy the predisposition of a stranger to yellow fever. This predisposition is, however, gradually lost by long residence and complete acclimation.

Negroes are rather less liable to it than whites; they may, however, be attacked, if born in the interior and removed to town. No African is known to have been seized with it here.

The prophylaxis consists in the careful avoidance of all ordinary exciting causes. Temperance, but not abstemiousness recommended. Low diet, venesection, cathartics and mercurials, so far from being serviceable, are dangerous and injurious means. The heat of the sun by day, and the damp dews of evening and night must be shunned.

History and Symptoms.—Yellow fever presents itself under two modifications, which depend probably in a great measure upon the state of system of the subject attacked, but partly perhaps, also, upon the intensity of the causes applied. The modifications are familiarly referred to in the phrases Inflammatory and Congestive, which are fairly enough characteristic of the distinctions between the two in appearance, symptoms, progress, and necessary treatment.

Of the *inflammatory* form. The paroxysm may or may not commence with chilliness; to which soon succeed heat and dryness of skin, with gastric uneasiness and pains of head, back and limbs, rapidly becoming intense; anxiety—restlessness—flushed, turgid face—red and watery eye, its motions being painful.

Head often attacked severely; patient being maniacal or delirious, and screaming with sharp pangs—confusion of thought no uncommon symptom from the very first.

Stomach irritable, with frequent vomiting, which occasions pain—there is heat and burning there, with a feeling of weight and hardness, and pressure on the epigastrium cannot be borne.

Respiration usually hurried and embarrassed, sometimes slow and labored—sighing and oppression at precordia.

Skin pungently hot and harsh, soon becomes yellow or of an orange or bronze hue.

Pulse not to be trusted. In the worst cases little altered; in milder attacks, full, hard, jerking and frequent.

Tongue at first soft and swollen and indented by the teeth—edges fiery red, centre furred and brown.

Thirst—water is urgently desired, as much for the coolness it imparts to the burning stomach, as for the relief it affords to thirst.

Bowels usually torpid and moved with difficulty. I have seen a case begin with diarrhœa.

Countenance marked, and expressive of anxiety, distress, gloom, impatience, sadness, wildness, terror.

Such is a description of the first stage, following the description given by writers, who recognize a division into three obvious stadia.

The stadium comprises the whole of the *febrile* paroxysm or excitement—its duration from four to sixty or seventy hours; the average is probably thirty-six to forty.

Second stage—by many considered, but improperly, as a state of remission. "It is a stadium *without any fever*." (Lining.) It commences with a gradual abatement of the preceding symptoms. *Head* is somewhat relieved—*pains* in back and limbs disappear perhaps. *Skin* becomes cooler, perhaps moist and soft. *Pulse* nearly natural, but increases in frequency and grows weaker. *Respiration* easier. Pain and burning of *stomach* lessened—vomiting attended with less effort. *Countenance* less turgid. *Eye* less red, and assuming a yellow tinge.

The patient is less anxious and distressed, and begins to indulge hopes of recovery. This stadium lasts but a few hours, never more than from twenty four to thirty six.

The third stage is distinguished from the second by no marked line. The symptoms of prostration are gradually shaded more and more deeply; the *pulse* sinks, is quick, unequal and depressed. The *skin* takes on a mahogany hue, which disappears on pressure, and returns slowly. The *tongue* sometimes soft, swollen, moist, indented, brown on the top, with a dark streak along the central line, often clean, and of a deep fiery red, as also the

whole mouth and lips—perhaps dry and cracked. *Stomach* excessively irritable, its contents ejected, without the effort to vomit, either by sudden contraction or hiccup. The black vomit comes on. The bowels yield, with black acrid and offensive discharges; the surface is cold and clammy; there is low muttering. Hemorrhage often bursts from every outlet, and death comes to the relief of the sufferer.

In the *congestive* form, the tokens of open, inflammatory excitement seem wanting, the system being prostrated before the excessive force of the morbid cause.

If the *head* be the centre of determination, there is lethargy, stupor, coma, convulsions.

If the *stomach*, the symptoms resemble those of poisoning with arsenic or other corrosive poison; there is no regularity of progress.

The *lungs* occasionally bear the *onus* of the attack, with livid face, difficult breathing, suffocation.

These cases are all marked, in a peculiar degree, by the mahogany or bronze hue of the skin, occasioned, I believe, by sluggish or suspended action of the capillaries, perhaps by actual paralysis of this system of vessels. It is a most gloomy symptom.

Under these circumstances, the patient usually utters little or no complaint—there may be no vomiting—the epigastrium bears pressure—the bowels are costive—the tongue dark, red, smooth and dry—the countenance stolid and fatuous—the skin insensible to irritation, or if inflamed, becoming gangrenous and sphacelated.

Anomalous cases, forming pathological curiosities, occur in this terrible disease. I have seen a patient walking about to the very moment of his death, carrying with him a vessel to receive the black vomit which he threw up frequently and copiously. Others die complaining of a single symptom, as headache and the like.

The *duration* of yellow fever varies much. It may terminate in a few hours. It may run on into a typhous condition, and last from twenty to twenty five days. The majority of deaths occur here on the fifth and sixth days.

Convalescence tedious, and apt to be harassed by abscesses on the surface. Relapses never occur. Second attacks are rare, and do not happen to subjects remaining in the same locality.

When the residence is changed, by advancing from a northern to a southern climate, the protection thus gained is not however absolutely to be depended on.

Prognosis.—Yellow fever, the most dreadful form of fever, taking precedence even of the plague in proportional mortality. The deaths at different times of its occurrence and in different localities, stated at one in three, (Gibraltar, 1804)—two in three, (Philadelphia, 1820)—seventy per cent. (Xeres de la Frontena, 1820.) In our city, will not average one year with another, more than one in eight—different epidemic seasons differ much, however, in proportional mortality. It is greater of course in the congestive forms.

The newly arrived stranger—the much exposed, as sailors—the intemperate, are in the greatest danger. With reference to this latter circumstance, national habits are of importance—the Irish, Germans, English, and Scotch, suffer most; French and Italians least. Young children when attacked are in great danger.

Unfavorable symptoms.—Much pain, heat, and tenderness at the epigastrium. Weak pulse. Skin relaxed and moist, unless this be attended with notable general relief and the strength holds out. *Shortness* of first stage of febrile paroxysm; I saw a patient recover, however, in whom it had lasted but four hours. Suppression of urine, or rather want of the secretion, considered by Rush a fatal sign; I have met with it in several instances, two of which recovered. We must not confound it with strangury, which is almost always favorable, yet I have lost a patient after its occurrence. Spots on the skin, petechiæ, vibices. Hemorrhage is among the very worst tokens of danger. Blood may be seen oozing from the tongue, gums, lips, and cheeks; it is ejected from the stomach; it colors the urine, and flows profusely from the bowels. It is often highly offensive in smell, and occasionally is so thin that it refuses to coagulate. It may exude from every opening of the body, draining away the strength of the patient—from the nose and ears, and from the surfaces of blisters. Finally, black vomit. This symptom deserves a separate consideration.

Black vomit consists of black specks or flakes, swimming in a brownish fluid resembling soot and water, coffee grounds, &c.

It is not, as was once supposed, composed of portions of the villous coat of the stomach, eroded and sphacelated, and mingled with the fluids of that cavity, for recoveries occur after its having taken place, and I have collected it from stomachs entirely uneroded.

It is not bile in any manner vitiated or altered, for it has been found in the stomach when the pylorus was closely contracted, and has been traced into the gastric vessels. It is found often in the stomach and intestines when the gall bladder and ducts are filled with ordinary bile. It differs besides in all its qualities from bile, however changed. It is not blood effused into the stomach and there acted on, for in distinct hematemesis the blood undergoes no similar change, retaining its purple hue, however long it may remain in the organ—to suppose a peculiar fluid thrown out in the diseased stomach which shall be capable of so changing the blood, is merely offering two conjectures to explain one phenomenon. It is more simple to suppose the black fluid, as I believe it, to be the result of a specific action of the gastric vessels upon the blood which they contain. It is so characterized before leaving the vessels, being traced into their very calibre. It has been maintained to constitute in its secretion the termination of a specific form of inflammation, and though this may be the fact in the gastritis and enteritis of yellow fever, yet it does not apply to its occurrence in other circumstances, as in pregnancy, rupture of uterus, dropsy, &c.

I have not seen black vomit occur in yellow fever earlier than the 16th hour, the 20th and 30th. It makes its appearance for the first time most frequently during the second stadium, improperly considered as a remission, towards its termination—or at the commencement of the third stadium. I have seen many recoveries from it; many more have occurred in the practice of my friends.

Autopsy.—Brain usually with its membranes engorged and inflamed—water has been found in the ventricles, and rupture of blood-vessels with evtravasation.

The *lungs* and *pleura* sometimes found to have undergone inflammation.

The *stomach* invariably more or less inflamed on its inner surface, sometimes on its outer also; so with the *duodenum*. I have never seen gangrene or sphacelus.

The *liver* often healthy—so the gall bladder.

The *urinary bladder*, not unfrequently inflamed and contracted.

Treatment.—In the inflammatory form, venesection is usually considered an essential remedy. It may be indicated as in bilious remittent, but I do not regard it as generally necessary or useful. Local blood-letting is unobjectionable; and cups or leeches may be applied to the head and abdomen.

The *cold bath* has proved in my hands equally effectual with the lancet, and safer. Affusion at first or immersion, afterwards aspersion or sponging should be employed as the case progresses.

Cathartics form an indispensable part of the treatment. The articles best retained by the irritable stomach, and in part therefore, for that reason preferred by me, are calomel and the sulphate of magnesia. These prescribed in alternate doses will act promptly, freely and effectually.

Emetics are injurious, unless when the patient has eaten a full meal just before the attack, and the vomiting has not been sufficient to empty the stomach.

Diaphoretics are useful. The pulv. antimon., infus. rad. serp. and ether nitros. may be employed.

But our reliance cannot be placed on any other mode of management of this terrible disease than that commonly referred to as the *mercurial treatment;* to this, therefore, I resort early.

Calomel should be given in large and free doses, repeated with a frequency proportioned to the violence of the case, until the disease is subdued. It is a dangerous error to cease from its exhibition when ptyalism has merely commenced.

It is objected to this mode of management, that it is too *slow*. I have produced the alterative influence of the remedy, as shewn by ptyalism, in 15 hours—20, 24, and 30 hours. This is early enough in the majority of the cases. Armstrong, with much less urgent employment of it, talks of succeeding "within the first and second days." The best adjuvants are the cold bath and the saline purgative.

Those who complain of the danger and ill effects of mercurial remedies, are chiefly such as have never used them or seen them properly used, and with the requisite boldness and promptness. They find calomel, they tell us, *too powerful* in doses of one, two and five grains; we find it, alas! deficient in power, though administered in half drachm and drachm doses.

If it be alleged that some die in spite of its use, we have but to acknowledge that man is mortal, and will die of curable diseases occasionally, and in spite of our best skill and most energetic medicaments.

It is farther true that if the case has progressed too far for restoration, the effects of the remedy will add not a little to the sufferings of the patient; nay, he may die with a sloughing cheek, and gums, and tongue; but this no more detracts from the value or propriety of the plan of treatment, than the sphacelation of a blistered spot from the value and propriety of epispastic applications, and is to be explained on the same principle, namely, that the vascular action has fallen so low under the circumstances, as to be incapable of supporting the local inflammation superinduced.

The permanent ill effects of mercury are rare and much exaggerated; they have never occurred in my own practice. I have *never* met with them in an adult. I have seen in consultation two such deaths (in a young child and a youth of fifteen) as I have above alluded to.

In children, I should not resort of choice to the mercurial. Its alterative influence is seldom well developed in these cases. The milder purgatives used freely in the first stage, and afterwards the combination of an alkali with an anodyne diaphoretic, such as a weak solution of carb. potass. with a small portion of tinct. opii camph., form my usual treatment of this class of patients. If the intensity of local determination requires it, the lancet may be used or leeches may be applied to relieve the head and stomach. While the skin continues pungently hot, the cold bath will be exceedingly beneficial, and even after the earlier excitement has subsided, we shall find much advantage in occasional sponging with ardent spirit. The restlessness of the latter stages too, is often subdued, and comparative tranquillity procured, by immersing the little sufferer in the tepid bath.

The *acetate of lead* is much extolled by Irvine and others; I have not succeeded with it. I suppose it best adapted in cases of the hemorrhagic character, perhaps the most intractable of all the modifications of this terrible pestilence. In such cases I employ also the nitrate of silver, in free doses internally, and as an application to the bleeding surfaces.

The *tinct. cantharides* may be employed in the latter stages, both as a stimulant and to procure revulsive determination to the urinary organs.

The *spts. terebinth.* is highly useful with similar views, and under similar circumstances.

Certain measures in the mean while may be instituted for the relief of particular symptoms or local affections. To relieve the *violent headache*, shave the head, pour cold water on it, apply pounded ice, leeches to the temples, a blister on the back of the neck. For *the irritability and pain at stomach*, apply leeches to the epigastrium, and sinapisms. The alkaline solutions, the alkaline draught, opiates occasionally, and in the latter stages capsicum in pill and infusion, and turpentine, may be used with advantage.

Muscular pains, sometimes intolerable—relieved by sinapisms and opiates.

In the *congestive* form of yellow fever, the *hot bath* is invaluable. Sinapisms, stimulants by the mouth and in enemata, and mercurials. An active emetic has succeeded in rousing the insusceptible system—mustard and salt being preferable for this purpose.

The apartment must be kept in all cases well ventilated and perfectly clean; so also the bed and body of the patient. Recoveries from yellow fever have occurred under such extraordinary circumstances, that the condition of the sick man can never be known to be absolutely desperate. He must never, therefore, be abandoned.

CATARRHAL FEVER.

The most frequent of epidemic fevers—most common in winter and spring, and in cold climates. I have, however, seen it

epidemic here in every month of the year in different years. When generally prevalent is called *influenza.*

Causes.—May be produced by exposure to damp and cold, and alternations of temperature; but is not, in the majority of instances, dependent in any degree upon the *sensible* qualities of the atmosphere.

History and Symptoms.—Catarrhal fever commences usually with chilliness, headache, sneezing, coryza, red and watery eyes, light soreness of throat and larynx, with cough and rattling of mucus in the chest—at first no expectoration; afterwards of mucus and muco-purulent matter—tongue red on the edges, and covered with white fur—pulse frequent, hard—skin hot and dry, pains in the back and limbs—unaccountable depression of spirits—exacerbation at night, with restlessness and cough, and some gastric uneasiness—with tension and stricture across the chest.

It sometimes happens that the whole force of the attack is determined to the head, assuming a peculiar form. There is extremely violent pain in the forehead, usually on one side; the eye of that side, and the skin surrounding it, looking red and inflamed. The pain is depressing and insupportable, and takes on an intermittent or distinctly remittent character, the exacerbations recurring for the most part in the morning or forenoon, and exhibiting an obstinate tenacity. It is obviously seated in the frontal sinus, and occasionally affects the antrum. The voice is altered in a characteristic manner.

General prognosis favorable—fever subsides, expectoration becomes easier and thicker, skin moist, respiration free, sleep refreshing, appetite returns. In adults rarely fatal, unless by exciting more serious disease. In the predisposed, apt to produce phthisis in its several forms, especially chronic bronchitis. Asthma has followed. In pregnant women may bring on uterine hemorrhage and abortion, whether by its specific irritation, or by the mere mechanical agitation of repeated coughing, is not decided. In old people and very young children, may suffocate by engorgement of the air cavities—*olim, Peripneumonia notha.* In infants, the symptoms of croup often mingle themselves with the other circumstances denoting the invasion of catarrhal fever. The determination to the head is sometimes so great, as to give rise to coma and convulsions.

Treatment.—Catarrhal fever may often be arrested in its *forming stage* by the free exhibition of opium, and indeed of other stimulants, but the opportunity for the use of these is transient. In the more common inflammatory form, venesection is often advisable—if the tongue be much furred, or the breathing difficult, an *emetic*—next *purgatives*—these may be combined with *diaphoretics*—the latter persisted in, and combined with anodynes and demulcents when the excitement is, in a certain degree, subdued. Dover's powder is here an invaluable medicine. If the local irritation run high, a blister may be applied to the chest or the back of the neck, according as the thorax or head is most affected.

The peculiar catarrhal affection of the frontal sinus, above described, is of very difficult management. The lancet will procure a certain degree of relief. Cups or leeches applied to the temples are of some service. It will be necessary to determine to the bowels by an active cathartic. These depletory measures being premised, I give at bed-time a full dose of Dover's powder, employing pediluvium, and keeping warm cataplasms with mustard applied to the lower extremities. The sulph. quinine and arsenic have been recommended in these cases.

The chamber should be kept at a regulated temperature during the treatment, say sixty degrees of Fahrenheit, but well ventilated. Bed curtains objected to. Convalescence carefully protected from exposure.

Catarrhal fever sometimes puts on a *typhous* or low character, more frequently in Europe and in large cities—here rarely, unless among exposed negroes. In such cases, the hot bath, sinapisms, stimulants and stimulant diaphoretics, with opiates, must be promptly and perseveringly employed.

In children, catarrhal fever takes on a modified character—there is much gastric and intestinal disorder—the tongue is much furred and becomes ulcerated, so also the lips and mouth—the stomach irritable—the breath fetid—the stools dark green, and offensive, or thin and acrid—the pulse incalculably rapid—the thirst intense—the breathing hurried and difficult, with great restlessness. In these cases the *emetic* is necessary, and will probably require repetition. The *warm bath* also, is exceedingly useful. The

mild *purgative* must be perseveringly administered, alternated at night with an anodyne diaphoretic. If convulsions supervene, cold water must be poured on the head from a height.

TYPHOUS FEVER.

A favorite arrangement of fevers among writers, from Cullen down to Good, contemplated three forms—the *Synocha*, as purely inflammatory—*Typhus*, or purely nervous—and *Synochus*, a compound of the characteristics of the two. According to the views formerly advocated, I regard all fevers as of this mixed or Synochus form.

Typhus may arise from any of the causes which produce debility direct, or from abstraction of accustomed stimuli—bad innutritious scanty food—cold or fatigue long continued—deprivation of fresh pure air. These circumstances depress the energies of the sensorial system, and the symptoms of such depression are prominent. It is the Famine Fever of the Irish—prevails among the free blacks in the northern cities to a great extent, and in camps, jails, foul ships and hospitals. It occurs among our plantations sometimes, from the filth of the negro houses; and a removal to new huts is found both remedial and prophylactic.

Typhous fever is contagious—it is also of epidemic dissemination.

It has been variously divided and subdivided. The old English writers distinguish Typhus Mitior or Nervous Fever, from Typhus Gravior or Putrid Fever—the more recent speak of Simple, Inflammatory, and Congestive Typhus, as mere grades, characterized by difference of intensity, and affecting in their progress different parts of the body in different modes. The French recognize many varieties, the Simple, Adynamic, Ataxic, Putrid, &c. There is still better foundation for the division into Cerebral and Abdominal forms. An essential distinction is, by some writers maintained, to exist between "Typhus proper" or "true Typhus," and "Typhoid fevers"—phrases which have now come to be universally employed among medical writers, yet without sufficient definiteness. There is no agreement or uniformity in the

views of those who argue most strongly for this essential difference of type. The characteristic distinction most dwelt on, are a peculiar mode of intestinal lesion, and an exanthematous eruption; but it is not clearly settled to which of the varieties of this class of fevers, these symptoms are confined. Dr. Gerhard, for example, represents true typhus as free from intestinal lesion, which he affirms to be regularly present in typhoid fever, the *Dothi*n *enterite* of Bretonneau. Yet he admits that this "follicular ulceration" may occur "incidentally" in true typhus. On the other hand, the majority of European writers, describe this epidemic and contagious typhus, as very frequently, nay, in some localities, "uniformly complicated" with the condition of the bowels. I cannot, therefore, venture to rely on any of the diagnostics proposed, or look upon any of the suggested distinctions as well defined or specific, and shall continue to regard all the varieties of typhus and typhoid fevers as mere modifications of a single type.

There is no class of cognizable cases in which the exanthematous eruption is of regular occurrence. Chomel, writing of "typhoid affections," says it is wanting in about one fourth the whole number of cases. I have not seen it in more than that proportion, perhaps because a majority of our patients here are blacks. The intestinal lesions are not constant, any more than the exanthema, in any season, or in any special type; seeming to be referrible to *locality* rather than to any other condition or circumstance. Armstrong and Lawrence have seen fatal cases without it. Andral recognizes a whole class of ataxo-dynamic fevers, "in which no lesion of the digestive tube exists." Lombard states the following facts. In Paris and Geneva, he found this lesion uniform—an essential element of typhus; in Glasgow it occurred not oftener than once in three cases—in Liverpool and Dublin in a still smaller proportion. In Birmingham he found it again uniform. In London, Dr. Tweedie says, it affects not more than one in four, varying with the seasons, and met with most frequently in autumn. Here it occurs often, but is by no means uniform, and seems to me to depend on the protraction of the cases, rather than on any other contingency.

Typhus Mitior—vulgo, Nervous Fever, usually occurs sporadically, comes on slowly and very gradually; anorexia, with furred tongue, and unpleasant taste in the mouth precedes—there is chilliness, weakness, and languor—depression of spirits—oppression at precordia—sighing. The pulse is frequent, small, and weak—the skin becomes hot and dry—there is headache, or vertigo, or light delirium. The duration of these mild cases is uncertain, and may be measured by septenary periods. For the first and second weeks the bowels will probably be torpid and inactive; in the third, they begin to be disturbed and irritable, with diarrhœa, colic, and meteorism. The stools are small, dark, and offensive. The eruption, which has been regarded as characteristic, comes out in the second week, about the ninth day. It consists of minute rosered spots, circular, very little elevated, disappearing on pressure. Their duration is very uncertain. A very different cutaneous affection is often met with. Minute hemispherical vesicles, called Sudamina, are found on the sides of the neck and in the groins and arm-pits. They are filled with a transparent fluid, and are more easily felt than seen. I have not often noticed them. Still later, and in the more unpromising cases, petechiæ appear. These are easily distinguished by the central red spot, caused by extravasation, which cannot be obliterated by pressure. When the patient is to recover, the symptoms above enumerated subside gradually; the skin is soft, the tongue pale and moist, and he sleeps calmly and refreshingly. Or, about the tenth or eleventh day, the muscular debility becomes great, with tremors or subsultus tendinum, the pulse rapid, the tongue dries, is of a deep red hue, and chapped or cracked—the teeth and lips covered with a dark, tenacious sordes—gloom and anxiety, with muttering delirium supervene, with picking the bed-clothes, and catching at imaginary objects in the air; coma, or brief convulsion, precedes death.

Prognosis generally favorable in this form of typhus.

Typhus Gravior—vulgo, Putrid Fever—scarcely ever sporadic—spreads rapidly by contagion or epidemic influence. Commences with alternations of heat and cold, succeeded by a pungently hot, harsh dry skin. The countenance expressive of anxiety and distress; the face turgid, with dark red flush; eyes

heavy and red, headache severe, mind disturbed and dejected; pulse small, hard, tense, frequent, irregular; tongue coated with thick brownish or yellow fur; gastric oppression great, with nausea and retching; bowels torpid.

In a short time, three or four days, tongue becomes dark, red, clean, smooth, dry, cracked—mouth and teeth encrusted with sordes—pulse sinks, and is feeble and undulatory and very rapid. Syncope on moving—subsultus tendinum—hurried respiration, with sighing and sobbing, or coma with slow and laborious breathing; breath fetid; petechiæ and vibices, hemorrhages of black blood—death from the fifth to the thirtieth day.

Prognosis in *Typhus gravior*, doubtful. All symptoms which betoken increased sensorial and vascular prostration are unfavorable, as stupor and insensibility to external impressions and irritations. Meteorism is not only a gloomy symptom, but a dangerous condition. It is of twofold character. 1. A mere flatulent distention of the intestines with air: this may give rise to perforation of the bowels when ulceration of its tissues or softening is present. If painful it may destroy the patient by the irritation it produces; if painless, it shows a loss of sensibility in the parts, perhaps an impairment of their natural contractility. 2. Effusion of air within the peritoneal cavity. This has been denied, but may I think be reasonably inferred when the alvine movements go on, with discharges both of flatus and feces, the distention continuing undiminished. This I have repeatedly seen. On the other hand reviving attention to these impressions, eruptions about the mouth, boils on every part of the body, a fuller and larger pulse, are favorable.

Autopsy.—In different cases different organs are found most affected. In some there is arachnitis; in others, effusion into the ventricles and upon the surface of the brain; in all there is vascular turgescence; a softening of some part of the brain is occasionally met with. The lungs are often found engorged, and sometimes hepatized. The abdominal viscera rarely escape injury, especially in protracted attacks; the mucous membrane of the stomach and intestines showing various conditions of disease, from mere vascular injection, with or without thickening and softening, to ulceration and even partial sloughing. This

ulceration most frequently attacks the glands of Peyer, less so the isolated follicles; hence most commonly found in the ileum. I have seen them in the colon also, perforating in one instance the coats of a large vein, and occasioning death from hemorrhage, when the patient was apparently convalescent. Their presence is to be feared whenever we have an irritating obstinate diarrhœa. They perforate sometimes through all the coats of an intestine. I once saw such an ulcer in the ileum. The patient after eating an orange, was suddenly seized with violent abdominal pains, and died in a few hours. On examination I found several pieces of the orange in the peritoneal cavity, which had evidently escaped through an ulcer of about one third of an inch in diameter, of ragged edges, situated near the lower end of the ileum.

Treatment.—In the milder cases, it will suffice to empty the stomach with an emetic, followed by a purgative. The best is the combination of merc. dulcis and pulv. rhei, persisted in to a moderate extent for a few days. Diaphoretics may be given in the mean time, assisted by the tepid or vapor bath. We may unite both these purposes by the exhibition of an infus. cinchon. et serp. with sulph. magnes. in small quantity. If the disease is obstinate, and the strength of the patient threatens to yield, resort to calomel in proper doses as an alterative, while you employ stimulants freely internally. Wine is the best of them; should be given unmixed—white preferable, as Madeira and Sherry; Port may be chosen if the bowels are loose. Sinapisms and vesicatories ~~may~~ be applied, and in such succession, that the patient ~~must~~ be continually under their influence.

The mercurials do not seem to be well borne when there is much abdominal irritation, unless combined with opium. If this be contra-indicated we may prescribe with advantage the acet. plumbi in small doses. Here too, the nitrate of silver is used with good effect. It disposes the mucous ulcers to heal, and seems to relieve tympanitis.

In the management of cases of typhus gravior, our task is a delicate and difficult one. Our urgent indications are to relieve morbid excitement and undue determinations to vital organs, with the least delay, and the least subtraction from the *vis vitæ*.

Venesection seems so obviously forbidden by the great apparent debility, that it requires courage to resort to it. A moderate bleeding will sometimes be well borne and do service in young subjects of good constitution, with tense pulse and vehement local determination. The topical detraction of blood is, however, generally to be preferred. Leeches or cups should be so applied as to relieve the organ suffering most prominently.

The *cold bath* will be useful if the skin is hot and dry. If cool and constricted, the *hot bath* should be substituted. An *emetic* is next serviceable; if it do not move the bowels sufficiently, it may be aided by *simulating enemata;* or, if the strength allow it, a *cathartic*—the combination of calomel and rhubarb, above mentioned, is preferable. The *mercurial treatment* should not be omitted—it affords our best hope of safety. In the mean time, stimulant diaphoretics should be freely employed, as camphor, the volatile alkali, aided by wine whey and infus. serpentaria. The vapor bath is often advantageous under these circumstances.

Opium is considered as a doubtful remedy. I often employ, however, the camphorated tincture with good effect. Indeed I see no reason for the avoidance of opium, if indicated, as it often is, by intestinal pain and spasm, and diarrhœa. In very many cases I use it without hesitation, and so far as I am aware without injury and with decided benefit. *Coma vigil*, which perhaps bears to somnolent coma the same relation that somnambulism has to sleep—a very annoying symptom, and one which not only distresses but exhausts the patient—may thus be relieved. It is often of great importance to procure a few hours of refreshing rest and repose, and there is nothing but opium available for this purpose.

Sinapisms may be applied extensively and frequently; but vesicatories, although they are often beneficial, yet embarrass us occasionally by sloughing, especially in the latter stages of protracted cases. Wine is infinitely our best and safest stimulant, and should be given unmixed; it is important that the patient should take it with pleasure and in abundance.

When wine seems to fail of its stimulating influence, and the patient still sinks, we must resort to the various modes of admin-

istering ardent spirit. Of these, milk punch seems least irritating, and deserves a preference for its nutritious quality. In cases which still seem tending to a hopeless stage of prostration, we may resort to the tincture of cantharides, phosphorus, and turpentine, which, though not the safest, are among the most active stimulants.

The mineral acids constitute agreeable drinks, quench the patient's thirst well, cleanse his mouth, and correct the fetor of his discharges.

In tedious cases, the parts pressed on as the patient lies in bed, must be relieved by all the arrangements employed in cases of fracture—the points of pressure must be changed and often gently rubbed. The body and clothes and apartment of the sick, must be kept scrupulously clean, and the latter well ventilated.

PNEUMONIA TYPHOIDES.

The form of fever which I treat of under this appellation, was noticed first in Massachusetts in 1806, whence it spread northward into Canada, and southward until it reached the state of Georgia. It appeared in Philadelphia in 1813—in Charleston in 1815, and underwent in this course numerous modifications, from varying circumstances of locality and predisposition. Among common people, it was known as "the cold plague," "spotted fever." I have arranged it as a new and distinct disease; some contend, however, that it is a revival of the ancient "febris petechialis"—others that it is a mere typhoid form of influenza.

Causes.—It was justly, and indeed of necessity, in its first appearance and early progress, above alluded to, ascribed to a peculiar epidemic constitution of air; the modes of excitement being precisely those which give rise to attacks of, and predisposition to typhus, as low bad diet, fatigue, long exposure to cold and damp, bad air, &c. Negroes seem to be specially predisposed to it, perhaps from their constitutional inability to endure severe cold. The number of cases which we meet with, indeed, seems to be very directly proportioned to the severity of any given winter.

History and Symptoms.—The most common form throughout the southern section of our country is that in which the tokens of *pulmonary irritation* are prominent. It is ushered in by a chill, succeeded by pains in the head and chest of great severity. The skin becomes hot and dry—the pulse frequent, small, irregular in force—the respiration catching, or hurried and embarrassed, with teasing cough—there is great muscular prostration, with shifting pains in the back and limbs—the tongue clean and fiery red. A degree of delirium exists often from the first, sinking soon into a low muttering condition. On the third or fourth day the tongue becomes coated with a dark crust, and dries—the teeth and lips are covered with sordes—the pulse grows weak and undulatory—from a sleepless state the patient falls into heavy slumbers, or is comatose—the breathing is more and more difficult, and death follows. Or about the 8th, 9th, or 10th day, his expectoration becomes freer—the anxiety less—delirium subsides—the pulse rises, becoming fuller and slower—a soft, warm moisture bedews the surface, and he recovers.

The *general prognosis* in this form of pneumonia typhoides is favorable. In individual cases the *unfavorable* signs are extreme anxiety and dejection, restlessness, debility, insusceptibility to external impressions, dyspnœa and orthopnœa, with livid countenance, petechiæ and vibices, inattention to light, the pupil being fixedly dilated or contracted. On the other hand, cheerful hope, uniform warmth of surface, easy breathing with free expectoration, intelligent attention to surrounding objects, and pulse fuller and slower, are favorable omens. Duration usually from six to twelve days.

This form of pneumonia typhoides, is also frequently modified in our southern country, by combination with circumstances of gastric and hepatic disorder. The first stage is characterized more distinctly by the tokens of open inflammatory excitement. The pulse is full and frequent—the tongue furred, with nausea and retching—pain in the chest and dyspnœa. This state does not last long, prostration soon following, with the symptoms recounted above.

The *anginose cases*, or those in which the *throat* was affected, were not unfrequent in the middle Atlantic states. There was

in these, at first, slight soreness of the throat, with ordinary catarrhal symptoms. On a sudden, respiration became much impeded, and great prostration took place. The fauces and tonsils were of a dark mahogany hue. The proportional mortality was very great—the patient sunk in a short time irrecoverably.

The *lethargic cases*, described by the Massachusetts physicians, as occurring among females, deserve notice:—"There was universal, deadly coldness—the skin as white as polished marble and smooth—countenance perfectly placid—pulse imperceptible at the wrist—action of the heart scarcely to be felt—respiration only by gasping, and that not frequent."—*Report Med. Soc. Mass.*

Sudden deaths, under anomalous and inexplicable circumstances, occasionally took place during the epidemic prevalence of the disease. Men died in the fields, being seized when at work, and sinking before they could be carried home. Others again seemed to be taken off by the most inadequate ailments, "dying," as the phrase was, "of a pain in the foot, or in the ankle, or knee, or wrist." Children seem to be exempt from its attack.

Autopsy.—The *thoracic viscera* bore the chief marks of inflammation. Flakes of lymph were sometimes found attached to the surface of the heart. The lungs were sometimes hepatized. The *brain* and its membranes showed similar determination and engorgement. Effusions of serum, of lymph, and of a sero-purulent fluid, were found on the surface and in the ventricles.

The *abdominal viscera* presented no regular appearances. The blood was black. The odor of the dead body was sometimes less offensive than during life.

Treatment should vary with the form and circumstances of the case; these being much influenced by locality, the reports of remedial management, accordingly differ much. Venesection much trusted to, usually in our southern country in the first stage. I did not see it often required.

An *emetic* is often used in the first stage with advantage, or an *emetico-cathartic.*

The *stimulating diaphoretics* were, however, the remedies most generally confided in—Dover's powder, carb. ammon., camphor, &c. Stimulants, both external and internal, should be assiduously employed.

In the anomalous cases described above, opium constituted the almost exclusive dependence of physicians, and was exhibited in very large doses; it deserves the highest confidence and the most unlimited eulogy. The mercurial treatment is recommended by the New England physicians. I have not found this resort necessary, however, in any case.

The convalescence is slow, and for a long time imperfect. Various tonics have been recommended, of which many practitioners have chosen the preparations of *arsenic.* I prefer, however, the cinchona—placing even before the sulph. quinine, the compound infus. cinchon. and serpentaria, with some alkali.

SYMPTOMATIC FEVER.

May be defined as *obviously connected with* local injury, derangement or irritation—and *subsequent to* or *consecutive upon* the local disorder.

May be distinguished into the Continued and Intermittent. I know of no remittent form of symptomatic fever, properly speaking. Symptomatic fever in both these types may be connected with the same local excitement—the former (in such case) always preceding the latter, being connected with *recent* injuries and acute inflammations; the latter taking its origin in *chronic* and *subacute* inflammations, and supervening upon uncured injuries of long standing.

Continued symptomatic is hence styled *inflammatory;* intermittent symptomatic has received the appellation of *hectic*, the fever emphatically of irritation.

Inflammatory symptomatic is the continued fever with which every surgeon is familiar, as following within a short period, wounds of soft parts, injuries of the head, fractures and compound dislocations. Here we have all the ordinary tokens which denote the presence of fever—hot dry skin, flushed and turgid face, red suffused eye, anxious countenance, tongue red and foul, thirst, nausea, and gastric oppression, headache, languor, muscular pain, occasional delirium, a pulse bounding, abrupt and frequent. The history of this form of fever is the greatest difficulty in the way of exclusive humoralism. It is not even pretended, so far as I

know, that the incipient phenomena here imply any cognizable vitiation of the blood or the fluids. It arises also in connection with internal local inflammations, as pleurisy, hepatitis, sore throat. Indeed it usually becomes of paramount importance in all these pyrectic disorders, of which it forms an essential part.

It is subject to be modified by the seat of local affection, and the state of constitution of the patient. In gastritis and enteritis, the fever is of low character or adynamic, with small pulse, great muscular weakness and prominent tokens of sensorial depression; in phrenitis and rheumatism the strength is less impaired, the pulse full and bounding, and the tokens of general vascular excitement are prominent. In erysipelas we may have either of those states, of high excitement, or of typhous prostration, according as the patient is of robust or feeble constitution, and is situated in a crowded, ill-ventilated hospital, or in the fresh pure air of the country.

Of the treatment of this form of symptomatic fever, we cannot speak in this place without impropriety; we shall discuss it as we proceed, in reference to each special case.

Hectic—intermittent symptomatic fever—is on the other hand, remarkable for this trait in its character, that it preserves its regularity of history, and progress, without any modification of consequence from any circumstance whatever.

An *idiopathic hectic* has been spoken of by J. Hunter, Good, and Percival, but (as I believe may be shown) altogether inaccurately, and on no good grounds.

Hectic is connected with a vast number of external sources of irritation. The local disorder from which it arises, may be seated in any viscus,* or part of the body—is usually of the inflammatory kind, and must have been of some considerable previous duration.

Nor is it modified by the peculiarity of function of the part thus affected, as other fevers are, being identically the same, whether based upon bronchial irritation, lumbar abscess, phthisis

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* There is a single exception. I have not, either in reading or observation, met with any one instance of the supervention of hectic upon any form of disease affecting the *brain* or its membranes.

Hectic never arises from nervous irritability.

tuberculosus, or cancer uteri. The formation and absorption of pus is not, as was formerly thought, necessary to its production; it accompanies induration and obstruction of the mesenteric glands, and of the pancreas, and gouty and rheumatic and scrofulous swellings of joints without suppuration.

The predisposition to hectic is specially developed in connection with the scrofulous diathesis, and perhaps extends throughout the phlegmatic temperament.

When fully developed, hectic presents two paroxysms in the twenty four hours, one coming on two or three hours before noon, the second eight to twelve hours later. There is sometimes, though perhaps not generally, a formed chill, succeeded by hot, dry skin, with burning heat at the soles of the feet and palms of the hands; pulse small, hard, tense, abrupt, and very frequent; there is great paleness of face, with a small circumscribed spot of florid red on each cheek; sparkling eyes, thirst, tongue smooth and red, as also the lips and mouth, with sometimes light aphthous ulceration; the stomach retains its tone, and the appetite and digestion are good, yet there is great muscular debility, and great emaciation; the nails are adunque, the teeth and sclerotica are of pearly whiteness.

The patient is usually cheerful and full of hope. I think I have observed, however, that this is only the fact while the digestive system retains its tone, and would regard it as diagnostic; always inferring disorder of the chylopoietic viscera, or some one of them, when the spirits are depressed.

The emaciation of the patient, even when he eats heartily, may be accounted for in two ways. Either the digestive function is directly impaired, which happens sometimes, with diarrhœa, &c., or the respiratory function is imperfectly performed—animalization and assimilation of chyle, which can be perfected only in the lungs, remain incomplete.

The stages of the symptomatic intermittent are less regularly exhibited than in the idiopathic intermittent. The day paroxysm rarely or never shows a sweating stage. The night sweats of consumptives, &c. are, I think, the termination of the night paroxysm.

Hectic usually supervenes with the access of the day paroxysm; to which is some time after added, the evening or night paroxysm—the first, then, being absent for a while; it again appears towards the conclusion of the case, and both harass the patient. I have, however, seen hectic develope itself with the double diurnal paroxysm from the first.

Treatment.—In general terms, if the local affection whence hectic is derived be curable, our attention should be directed to its management. If it cannot be cured, but can be taken away, let it be removed surgically. If it can neither be cured nor taken away, we must aim our efforts at the reduction of the excitability and irritability of the patient, and at the diminution of the influence of the local irritation upon the system. *Narcotics* and *tonics* must, with these views, be resorted to. Of the first, opium, or some of its preparations, morphine, mur. and acet. morphine, narcotine, and denarcotized laudanum, will be the chief—prussic acid, spider's web and conium, have been recommended.

Of the tonics, cinchona is the best. The sulph. quinine may be used, or the infus. cinchonæ et rad. serpen. cum. carb. potass. vel sodæ.

I have succeeded in preventing the day paroxysm, not unfrequently, with the combination of quinine and piperine, formerly mentioned. It does not, however, seem to exert a similar influence over the night paroxysm.

The *metallic* salts are much used, arsenic especially. The tinct. acet. æth. ferri, is a useful and agreeable tonic.

The *mineral* acids do something in restraining the debilitating night sweats and diarrhœa. The mur. tinct. ferri, I prefer, as combining the advantages of the last two classes of remedies.

Sulphur has been also employed, upon the analogy of its utility in idiopathic intermittents, but to little purpose.

Fresh air, exercise, change of place by travelling—these when they can be borne, are incomparably the best tonics.

SYNCOPE.

Leipothymia.—Defined by Cullen—"Motus cordis imminutus vel aliquamdiu quiescens." This languor or suspension of the

circulatory function, is the prominent point in its description or history.

Causes.—Among the *predisposing*, we may rank general debility from previous disease or suffering—constitutional mobility of fibre, both accidental and hereditarily transmitted. The *exciting* or occasional, may be arranged under three separate heads.

The 1st, comprises certain structural disorders of the heart, or of the large vessels or parts in the immediate neighborhood, which may mechanically interrupt and disturb the regularity of the circulation, as passive hypertrophy or aneurism, ossifications, effusions, &c.

2d. Such circumstances as depress the circulatory power, whether directly or indirectly—hemorrhage, inanition from want or from protracted disease, inordinate discharges, whether natural or morbid, the removal of the abdominal distention in dropsy, by allowing the blood to rush into the vessels from which it had been for some time previously expelled by pressure of fluid. Pregnancy presents occasional attacks of syncope, as giving rise to undue determination of blood to the uterus, leaving the heart insufficiently excited.

3d. Under this head I include those agents which make their primary impression upon the sensorial system—pain, sudden relief from great pain; disagreeable impressions not absolutely painful, as the effect of heat and bad air in crowded places, of unpleasant odors—or from idiosyncrasies, odors not unpleasant; the sight of disgusting objects; most of all, of the passions and emotions, as joy, grief, terror, horror, and impatience.

How these latter act is difficult to point out with precision; none of them are positively sedative in their operation. Cullen, ingeniously attributes the result to a rapid and sudden exhaustion of the nervous energy. Perhaps something ought to be ascribed to the very inordinate cerebral determination, which undoubtedly follows the application of the above causes; this may be so exquisite and exclusive, as to leave the heart so far unsupplied, as to render its action languid or interrupt it. That such cerebral determination is an occasional coincident in syncope, is evident from the occurrence not rarely of convulsions from venesection, and in recovery from the fainting state.

Fainting comes on with an oppressive sense of weakness and languor, with paleness or lividity of the visage. The pulse is weak or ceases, the skin is cold, the eyes are turned upwards and half closed. The respiration is scarcely to be perceived, or there is gasping and moaning—the patient falls insensible. After an uncertain duration, the surface being in the mean while clammy, cold, and pale or livid, the circulation is gradually restored, the breathing more distinct, sensibility and strength return. Recovery is attended with vertigo generally, and more or less nausea; there is sometimes vomiting. I have twice seen violent convulsions—*quasi* epileptic—in patients not subject to attacks of epilepsy, either previously or afterward.

Diagnosis.—From apoplexy, distinguished by the paleness and coldness of the face and skin, the feebleness and quickness of the pulse, and the languor of respiration. From asphyxia, generally, by the history of preceding circumstances.

Prognosis, almost universally favorable. A few fatal cases are, however, recorded.

I am inclined to suspect that we should place here, some at least of the deaths ascribed to what has been called "simple apoplexy," i. e. apoplexy without any traces of cerebral lesion. It has been affirmed, that *coup de soleil* is often "a pulmonary, not a cerebral apoplexy." If so, may not the condition of the lungs thus alluded to, be owing to intense syncope?—the blood being congested in the thoracic vessels, because denied a passage through the inactive heart.

Treatment.—Modified by cause and condition of the patient. If syncope be produced by the first class of causes, above recited, a cure is not to be hoped for. As palliatives, physical repose must be enjoined, and mental tranquillity; diet unstimulating, but moderately nutritious. Perpetual blisters or setons in the chest or arms are used; venesection and digitalis.

In cases of the second order—those namely connected with inanition—the patient must be placed in a recumbent position, so as to allow of a freer and more forcible passage of blood to the brain, now insufficiently stimulated—dash cold water in his face, apply ammonia and other pungent volatiles to his nostrils and eyes, warmth to the extremities, sinapisms, and other irri-

tants—electricity and galvanism, if at hand. When recovering, give him some warm nutritious fluid, with wine.

The management of cases arising from the *third* series of causes, will be more nice and delicate. If the patient have been excited by the more violent passions, his pathological condition presents some of the contingencies noticeable in apoplexy, and it will be perhaps advisable, to take blood from the jugular vein or temporal artery, or at any rate, to apply cups and leeches to the temples and neck. If by the less vehement emotions, as pity or disgust, external irritants will probably rouse him, and stimulants and antispasmodics complete his restoration.

To prevent recurrences of syncope, the general health must be properly regulated by observance of a proper regimen and diet—nutritious but unstimulating aliment being preferable—and the use of tonics, the metallic salts and mineral acids being preferred—and above all, exercise in the open air.

Women are much more liable than men to attacks of syncope; children are seldom seized with it; I have, however, seen several attacks of great violence and long duration in a child not more than seven weeks old.

ANGINA PECTORIS.

Syncope anginosa—Sternalgia—Asthma dolorificum.—An obscure disease, probably an affection of the heart. Its nature not well ascertained. Spasm perhaps of the cardiac fibres or of some of them—attended with great pain in the chest, and sense of suffocation and impending death—paroxysmal, recurrent.

Causes various. It is connected often, but not always, with the plethoric condition—sometimes with gout—rarely appears before middle age. Autopsies have exhibited diversified structural derangement of the heart and large vessels; thus the coronary arteries of the heart have been found ossified, so have the cardiac valves—hypertrophy concentric and eccentric—but none of these appearances are constant.

The earlier paroxysms brought on by violent muscular exertion, as in walking against the wind, or ascending a height; after a time, the slightest effort occasions a return of the habitual par-

oxysm, as in coughing, &c., until at last it invades, without obvious cause.

History.—The first attacks, produced by severe exercise, cease as soon as the patient stands still; when it has become habitual, they may last an hour or even more. The pain in the chest is exceedingly intense, shooting across the sternum, and extending down one or both arms (most commonly the left) to the elbow or wrist. There is dyspnœa, the countenance being pale or livid; the pulse varies much.

Prognosis unfavorable. Death not unfrequently occasioned by the violence of a paroxysm. The tendency to recur is obstinate, and the system sinks under a repetition of attacks. I have seen apoplexy occur at the termination of a paroxysm.

Treatment.—During the paroxysm, if the patient be plethoric and of robust habit, and the case recent, bleed promptly and freely, with revulsions of the most rapid and impressive character. Cold affusion is often useful. If he be, on the other hand, feeble, or the disease chronic and habitual, the most vehement stimulants are demanded, as ether, laudanum, brandy, sinapisms to the chest.

In the intervals we proceed with reference to the cause and the condition of the patient. If there be organic affection of the thoracic viscera—regulated diet, rest, small bleedings, digitalis. If the patient be arthritic, the treatment of gout is required. If plethoric, endeavor to restore the balance of functional power and action—if debilitated, stimulate and revive him. Tonics are much employed. Exercises of gestation are well borne and highly useful; the metallic salts, the mineral acids and sulph. quinine are also serviceable. Much stress is laid upon the effect of revulsives and counter-irritants, as epispastics applied to the wrists and ankles, and setons and issues in the arms and the thorax. The pustular inflammation of tartrate of antimony, excited and kept up for a long time, is said to have been of great advantage.

HEMORRHAGE.

May be here defined, a flow of blood from some part of the body, without wound or external injury; apt to be considered a

sign of rupture of some blood-vessel; this is, however, not very often the fact. Ulcers may corrode the coats of a vein or an artery, or they may otherwise lose their power of cohesion, but usually the blood is poured out from an unbroken surface, by a sort of diapedesis or transudation, not well understood.

Divided into Active and Passive. Cullen has placed hemorrhage among the Pyrexiæ, regarding fever as an essential part of the definition of active hemorrhage. This is an error. Active hemorrhage frequently takes place unpreceded and unattended by fever. Yet it is most generally soon followed by a febrile exacerbation—a statement which is also true of what are called passive hemorrhages. Good has substituted the preferable phrases, Entonic and Atonic hemorrhage. The first occurs when the system of the patient is at or above the ordinary condition of strength or tone. Atonic or passive hemorrhage, when he is notably below this point, and in a weak and enfeebled state of general health.

Causes of hemorrhage.—Among the principal of these, *plethora* is much dwelt on by authors, and deserves a moment's consideration.

Plethora was looked on by the older writers as of several varieties; they recognized *P. ad molem—ad spatium—ad volumen —ad vires.*

Plethora ad molem contemplated the absolute superabundance of the vital fluid—hyperæmia. This I do not believe to exist in any case; though it is a favorite opinion of Andral and other justly celebrated moderns. *Plethora ad spatium* expressed the quantity in reference to the contracted state of the vessels. It may be questioned whether something of this nature does not form a part of the early history of congestive and malignant fevers, as shown by the oppressed pulse. *Plethora ad volumen* regards the supposed expansion of the blood itself. By some such effect on the actual mass, which is subject to the universal law of increase of volume with elevation of temperature, we account for the headaches of spring and early summer, apoplexy and insolation, as well as the frequent hemorrhages of that season. *Plethora ad vires* is a condition of the system in which the mass of fluids and the force of circulation are disproportioned to the tone

of the vessels containing them or to their power of resisting the impulse incessantly acting upon them. If in any part the integrity of the tissues of which the vessels are composed is impaired, they must then give way; hence the hemorrhages in diseased lungs, and from inflamed surfaces. Such degeneration of tissue, is among the most important predispositions to hemorrhage.

Its occasional causes are, in general, such circumstances as either excite or increase the force of the circulation, and such as give rise to strong local determinations—running, leaping, violent passions; all stimulants under the first head; under the second, cold, heat, their alternations, diminution of atmospheric pressure, as at great heights, external violence, improper postures of the body, ligatures, undue employment of certain organs, as among goldsmiths and musicians.

Hemorrhage may occur from either arteries or veins; in early life, the blood is usually inferred from its florid color to be arterial—in old age, venous. Each of the individual hemorrhages seems to be more specially incident to a given stage of life; Epistaxis in childhood, Hemoptysis at puberty, Menorrhagia, H. proctica and H. cerebri in old age; scrofulous constitutions most liable to them all.

The premonitory symptoms of hemorrhage, the phenomena which immediately precede its appearance, are analogous with those which denote the presence of inflammation. The part from which the blood is to burst forth, is affected often with a sense of heat, throbs and suffers pain of some kind, usually sharp and pungent; there is also a feeling as if it were swollen and heavy.

The hereditary transmission of hemorrhagic tendencies is not denied; and numerous examples are on record, in which whole families are thus affected in successive generations.

Hemorrhage is remarkably liable to recur, and in many cases observes a regular periodicity of repetition. This is, by many, attributed to lunar influence, and with much plausibility. Hemorrhage was anciently regarded as a salutary effort of the *vis medicatrix naturæ*, to save the system from worse evils; and this notion is even now prevalent concerning two of its forms—epistaxis and hemorrhoidal discharges of blood. The utmost that

can be made out in favor of this notion is, that one disease is thus substituted for another; hemorrhage is no less a disease, and requires proper management to avert serious and even fatal consequences.

All hemorrhages may thus be vicarious or revulsive, as is often noticed in cases of obstinate amenorrhœa. They may burst forth from any part of the surface of the body, as from the mamma, the finger, or as I have myself seen, from the skin of the cheek just below the eye, at that part which is so often discolored in sexual diseases of females.

Particular Hemorrhages.—*Epistaxis* or bleeding from the nose, often preceded by headache, vertigo, flushing of the face. Cold should be applied to the surface, either generally or partially, and determination to the head relieved by the lancet if necessary, and saline purgatives. If it is apt to return, a blister should be applied occasionally to the back of the neck, or a seton introduced there.

Bleedings from the *gums* and *fauces* are sometimes very troublesome, and afford us an opportunity of remarking—1st. That hemorrhage is often a simple transudation; the blood has been seen issuing from the whole surface of the mouth, gums, tongue, &c., without ulcer, or erosion, or wound of any kind. 2d. That the unmanageableness of hemorrhage, when it is of embarrassing obstinacy, or recurs frequently, is owing sometimes to a loss or impairment of the coagulating quality in the blood. I do not affirm this to be always true, but I know it to be occasionally so. Cold and astringent washes will, generally, check the discharge.

Hemoptysis, or spitting of blood. Rarely occurs as a primary disease; but for the most part, attends upon inflammatory and scrofulous affections of the respiratory organs and their tissues. It may happen, however, in individuals whose lungs are not impaired in structure—Hæmoptysis plethorica. Hemoptysis generally follows puberty, and takes place between the 15th and 30th years of life.

Diagnosis.—The blood is thrown out from the mouth after coughing or deep hawking or expectoration, frothy, and of a bright florid hue—there is usually pain or heat and weight in some part of the thorax.

Prognosis.—Not usually attended with great imminent risk. Few bleedings from the lungs are so profuse as to kill at once, but it may happen. In general the danger arises from the previous condition of the patient, whose prospect is gloomy, if he have labored under any chronic pulmonary disease, whether bronchitis or pneumonia proper. There is much less to fear—indeed, there is no great reason for dread, if he be free from previous disease of the thoracic viscera.

Treatment.—If hemoptysis be entonic, the pulse firm and strong, and especially if febrile symptoms attend, venesection must precede other remedies. The lancet must, however, be employed with caution. Much harm has been done by its rash and indiscriminate use. A good domestic prescription is the administration of common salt, which may be taken largely, and is often promptly efficient in checking the flow of blood, which it does probably by stimulating the extensive surfaces of the pharynx, esophagus, and stomach, and thus deriving from the neighboring thoracic vessels. It is also serviceable by nauseating, when taken abundantly. Other *nauseants* are exhibited with benefit—ipecac. especially, which I prefer—tart. antimon. and the sulphate of zinc.

As *sedatives*, the nitrate of potassa and digitalis are often resorted to. Some have ventured on cold applications, but this is attended with much doubt and risk.

The *acetate of lead* is prescribed here as an *astringent*, and is undoubtedly useful in cases of a chronic character. When combined with *opium*, to diminish irritation, and with ipecac. so as to produce slight nausea, it is among our very best formulæ.

Revulsion must be attempted vigorously. Sinapisms and blisters should be applied to the chest and limbs, and the former may be kept under the perpetual irritation of vesicatories, or of the tartar emetic ointment.

Cough may be allayed by demulcents and opiates. Strict silence enjoined—the diet kept very low—and the patient, for a time, remain perfectly at rest.

In atonic hemoptysis, we must modify our treatment, by abstaining from venesection, and allowing a freer and more nourishing diet. Here opium may be given pretty largely; and the mu-

riated tincture of iron will be found serviceable as a tonic and astringent. Absolute silence must be advised.

Hematemesis, or vomiting of blood. Blood thrown up from the stomach is grumous, dark, clotted, and mixed with mucus, and other contents of that viscus. The discharge is often preceded by gastric uneasiness and oppression, with faintness and nausea, and sometimes heat or a pricking pain. These symptoms, with the absence of cough and other respiratory disorder, readily distinguish the disease from Hæmoptoe.

Causes obscure. Intemperance predisposes to it; brought on by external violence, by straining to vomit, by obstructions to abdominal circulation, as in pregnancy and in disorders of the liver and spleen, and by the suppression of some accustomed evacuation, as of the catamenia in women, and the hemorrhoids in men.

Prognosis.—Not generally attended with great danger.

Treatment.—If entonic, with pain and heat of epigastrium and hard pulse, venesection and the Epsom salt should be resorted to, and the bowels freely operated on. Cups or leeches may be applied to the epigastrium, which should afterwards be irritated by sinapisms. It is more frequently atonic however; the pulse is feeble, and the whole frame debilitated, and requiring a very opposite management. Stimulants and astringents are required. Small draughts of brandy and water may be given—acet. plumbi in moderate doses administered with opium; the tinct. mur. ferri is also useful; a vesicatory should be applied over the stomach without delay, to prevent a return. The infus. cinchonæ, with any of the mineral acids, may be taken, and a generous diet allowed.

Hematuria, or discharge of blood from the urinary organs, though not of frequent occurrence, will sometimes fall under your care. It is generally brought on by accident or violent muscular exertion. The most obstinate case which I have seen, was regularly produced by coition.

This hemorrhage generally requires, and is readily managed by venesection, mild cathartics, cold applications to the pubes, and perseverance in a recumbent position. If tenacious, we may use the acet. plumbi and the tinct. mur. ferri as astringents.

Hemorrhagia proctica.—Discharge of blood from the anus, is of very rare occurrence, idiopathically, being for the most part, an attendant upon hemorrhoids, dysentery, &c. I have met with three or four cases of spontaneous flow of blood from the anus, however, when there was no hemorrhoidal tumor, and the bowels were otherwise apparently in a healthy state.

Besides the remedies enumerated under the former heads, you will find much advantage here in the employment of cold and astringent enemata.

HYDROPS.

Dropsy is generally assigned to consist in a preternatural collection of serous fluid in one or more of the cavities of the body or in the cellular membrane. The definition is thus taken from a single symptom, but the pathology of the disease is exceedingly obscure.

Dropsies may be local or general. By the first we mean a collection of fluid in some part, without disorder of the general system or farther extension of the effusion of fluid. General dropsy is a phrase which implies the existence of hydropic diathesis—that is, the tendency to effusion of fluid every where —with the actual presence of some collection. Hydrocele is exclusively a local collection of fluid—so is ovarian dropsy—so, for the most part, hydrocephalus. Anasarca may be an insulated or exclusive affection. On the other hand, ascites and hydrothorax are almost invariably connected with, dependent upon, and symptomatic of general hydropic diathesis.

It is usual to account for the accumulation of fluid in these cases, by the supposition that the natural and healthy correspondence between exhalation and absorption is interrupted—impaired either locally or generally. Some maintain an undue excitement—some a relaxation of the exhalent vessels—others suppose an imperfect action or condition of debility in the absorbents; but there is an almost universal accordance in the doctrine that the fluid accumulated, is the same which is thrown out in health by the exhalents to lubricate the surfaces, as the phrase is, of the cavities. The correctness of this view of the matter is

rendered doubtful by the fact among others, that the cellular tissue is the frequent seat of hydropic effusion; while it is not alleged that in a state of health its cells contain any fluid whatever.

The causes of hydrops are very various. Among them are enumerated both *hyperæmia* and *anæmia*, general plethora, debility from whatever source, whether low innutritious diet, bad air, or previous disease, great losses of blood or other evacuations, and intemperance chiefly. Many diseases give special predisposition to dropsy. This is remarkably the fact in reference to scarlatina—it is true also of peritonitis, tympanitis, hepatic and splenic affections, and perhaps of small pox and influenza—it follows sometimes the abuse of powerful remedies, as drastic purgatives, mercury, iron, and the vegetable acids.

Hydrops is connected both with the entonic and atonic states of constitution, which, therefore, it would be well to substitute for the old terms Acute and Chronic.

Prognosis in general dropsy unfavorable, as would be readily inferred from the perusal of bills of mortality every where. It depends upon the previous state of the patient, and his habits, upon the form which it assumes, and upon the locality of the effusion.

Dropsies which are among the ultimate manifestations of a cachectic condition of the body, are almost of course incurable; such is the state of the sot. On the other hand, we have much hope of removing such as occur from whatever cause in a system but lately healthy and vigorous; as when dropsy comes on from any one of the exanthemata or other recent malady, or from a transient exposure to some morbid influences. Entonic dropsy is for the most part more easily managed than its reverse, for obvious reasons.

The locality of the effusion seems to be of importance in reference to the organ, with the performance of whose function it may interfere. If such function be important to be performed vigorously and without interruption, the danger is of course great, as in hydrocephalus. Hydrothorax also presents a similar character.

The worst prognosis is, however, to be drawn from the manifestation of a general or universal diathesis, by the concurrence of several effusions in different localities. In such cases, although you may relieve the patient of the accumulation, and in various modes procure the discharge of the fluid, yet this is far from a cure of the disease, which remains obstinate, and will show itself by the renewed accumulation of the same effusions, until the patient can sustain it no longer.

The morbid anatomy of dropsy deserves attention. If the hydropic affection have been general, the cavities of the body contain a watery serous fluid, which is indeed diffused through all the tissues. The very fibres of the muscles seem sodden in it, and water will continue to drip from them for a long time, if taken out and hung up. The cellular structure is abundantly injected with it. I have seen the heart itself flabby, pale, soft as if soaked or macerated.

In hydrocephalus the effusion may accumulate in the ventricles, or spread upon the surface of the brain externally. In the former case it will be spread out, and in the latter condensed and small. Dr. Wistar saw it distended like a bag, against the cranium, not more than one eighth of an inch thick; and it has been found not larger than an egg, lying on the base of the skull.

The fluid collects in the pericardium, in the pleuræ, and in the substance of the lung. By its pressure, absorption or perhaps rather condensation of the lung may occur; I have met with it smaller than a man's fist.

In ascites the effusion is always connected with obvious signs of hepatic disease, enlargement and obstruction. The spleen may be in the same condition. The kidneys are occasionally diseased. I have seen them full of hydatids, or bodies closely resembling hydatids.

Treatment.—This must depend upon the condition of the patient, and the obvious or probable cause of the access of the disease. In the entonic forms of dropsy, the lancet must often be used freely—drastic purgatives are much employed—the saline and vegetable diuretics—the antimonials and mercury, as diaphoretics and alteratives; and when the undue vascular excitement is reduced, various tonics, bark, iron, wine, &c. are resorted to.

On the other hand, in atonic cases, tonics and stimulants are at once prescribed, and every effort made to reanimate the enfeebled functions.

ANASARCA.

Hydrops cellularis.—One of the most frequent forms of dropsy, consists in a collection of serous fluid in the cellular tissue. This infiltration often occurs in a local or partial form, when it is termed Edema, as in old age, in the last stages of phtisis, and in many other diseases, and not uncommonly in the debility of early convalescence from severe maladies.

A pale swelling of the lower extremities, easily pitting upon the application of pressure, unattended at first with any heat or soreness of skin, is the first symptom of anasarca; the intumescence becomes more general, until the cellular structure every where is filled with fluid, giving to the countenance a heavy and flabby expression, and impeding all the movements of the body. If not relieved, the distention of the skin increases so as to produce inflammation, ulcer, and gangrene—large quantities of serum being thus discharged.

These symptoms are attended with languor and general feebleness and inactivity—the surface is harsh and dry, the thirst considerable, the tongue often foul, and the appetite and digestion impaired.

Anasarca may be either entonic or atonic. In the former case the pulse will be quick and hard, and the skin above the usual temperature. In the latter, which is by far most general, we have an opposite condition of the circulation, and the skin is cool or even cold. The urine is usually small in quantity, and high colored. The bowels are costive.

Causes.—Anasarca is connected with a great variety of circumstances, which are thought to have given rise to it; mere *debility of circulation*, as in cases alluded to above—*inflammatory affection* of the *subcutaneous cellular* tissue, as when it follows the exanthemata, scarlet fever especially—*visceral obstructions.* Some writers describe an acute or sudden anasarca, connected with *pulmonary* disease—diseased state of the kidneys.

Prognosis.—If occurring alone, and in constitutions previously healthy, anasarca is readily curable; under other circumstances, the prospects of the patient are unfavorable.

Treatment.—This must vary obviously with the causes of the attack, and the condition of the patient. In the entonic or excited state of the system, the lancet is used freely and with much advantage. Drastic purgatives are also employed—jalap with supertartrate of potassa, and such generally as procure thin and watery evacuations, hence called Hydragogues. Of these elaterium, scammony, colocynth, and gamboge, are recommended. The three first I never employ, the fourth rarely—they are violent and irritating, and may, I think, be dispensed with from the materia medica. The Epsom salt is serviceable, and may be combined with the other formulæ prescribed.

Emetics are often used in anasarca; and when we have, as is very frequently the fact in our black patients, a very foul tongue, and a stomach much disordered by their bad and irregular habits, we shall find advantage in vomiting, occasionally excited. Ipecac. and tartrate of antimony may be used separately or combined. The emetic is required to be frequently repeated in the case of those who eat clay or dirt—a habit met with now and then, and apt to be productive of marasmus and anasarca.

Diaphoretics are also employed. The Polygala seneka and the Serpentaria Virginiana, are much used among us, and constitute, in infusion, good bases for serviceable formulæ. They combine well with the nitrate, tartrate and supertartrate of potassa, and other salts, both cathartic and diuretic, while they act as very efficient diaphoretics. The antimonials have also been highly eulogized. Dover's powder, when no contra-indication is presented, is among the best of this class of remedies; and indeed I would lay much stress upon the free use of opium in most cases of dropsy. Whenever attended with much general distress, irritation, restlessness, and sleeplessness, this divine remedy is of infinite value.

Diuretics have been promiscuously employed in all dropsies, and most unduly extolled. The original notion of a direct dependence of the accumulation of fluid upon a diminished urinary secretion, led to this practice, which has seemed to be supported

by the alleged observations of Blackall upon the changes in urine, connected with the presence of dropsy, and the remarks of Bright and Christison upon the frequent co-existence of disorganization of the kidney. The received opinions on this subject seem to me erroneous. I do not conceive any medicine to be useful directly in dropsy as a diuretic, that is, merely by promoting urinary discharges. And further, all remedies which are successful in their application to the various cases, produce, as in the treatment of fever, an increase of this as of the other excretions. Thus the lancet, mercury, opium, the antimonials, all give rise to large discharges of urine, when used with judgment. Digitalis is the object of almost unanimous preference among the diuretics, specifically so called. Yet there is no satisfactory proof of its direct diuretic influence. I use it extensively in pulmonary and other diseases, without observing any such operation. Of the squill the same may be said, as also of tobacco.

A great number of articles are prescribed under this head. The nitrate, acetate, and supertartrate of potassa, the vegetable acids, horse-radish, and parsley, are among the best.

The Eryngium Yuccifolium, or button snake-root, and the Colchicum autumnale, deserve also to be exhibited.

The *tonics* are entitled to much confidence in a large class of cases.

Among our negro population, anasarca usually occurs of low and depressed character, and connected with a very cachectic state of the body. Here cinchona is our best remedy, and is very often sufficient in itself for a perfect cure. Iron is also extensively used and much confided in. So also the vegetable bitters. The cold bath is serviceable when it can be borne. To evacuate the fluid, distending and irritating the integuments, scarifications should be made from time to time, in the most depending part, with the point of a clean and sharp lancet. If these little wounds ulcerate, or indeed of choice, acupuncture may be substituted, and will often answer very well, the needle giving discharge to considerable quantities of serum, and thus bringing great relief to the patient.

ASCITES.

A collection of serous fluid within the cavity of the abdomen. Its presence is marked by a gradually increasing equable swelling of the belly, attended by a sense of weight, and usually with perceptible fluctuation. The general health is much disordered. There is in almost every case more or less febrile excitement, thirst, diminished perspiration, with harsh dry skin, diminished urine, drowsiness and languor; the tongue is foul, the appetite and digestion disturbed, the bowels costive, the respiration impeded from the upward pressure of the diaphragm; after a short time, anasarca ensues, and sometimes hydrothorax.

The *diagnosis* is important, but not always easy. It is to be distinguished from pregnancy in women, from tympanitis, from physconia or visceral enlargements, and from ovarian and encrysted dropsy. We must consider, in relation to the first, the signs, as they are called, of pregnancy. Where these are altogether wanting, and the other tokens of hydropic diathesis present themselves, the inference is clear; unfortunately these two states sometimes occur together, and are confused.

Tympanitis is distention without weight—it is tense and resounding.

Physconia is slower than ascites, for the most part, in its increase, and is irregular in form, and not equable in the swelling it occasions. So also of encysted dropsies, which are, besides, unconnected with notable disturbance of general health.

Causes.—Ascites is rarely idiopathic, in the primary or independent sense; it is generally connected with visceral disease, hepatic, splenic, nephritic. It may be developed suddenly, as in a case related by Darwall; two of a similar nature occurred to Chapman; and I have seen an instance following in a few hours upon dysentery, and preceded by very transient tympanitis.

Prognosis generally unfavorable; but we should refer, in particular instances, to the cause, and to the previous state of the patient. If entonic, and unaccompanied by anasarca or hydrothorax, recoveries from ascites are not unfrequent.

Treatment.—Besides the remedial management generally instituted in anasarca, and equally well adapted here, we must lay no little stress upon the exhibition of mercurials, on account of the ordinary dependence of ascites on visceral obstruction. They should be administered slowly and in small quantities, and in combination with the other remedies indicated. Ptyalism should be avoided, as irritating and injurious.

The propriety of *paracentesis* has been a matter of much dispute. I should not hesitate to resort to the trocar, to relieve the patient from the distress produced by distention. Pressure applied carefully after the belly is thus emptied, has been found useful. The bandage should be applied uniformly and with assiduous attention. Tonics and exercise are indispensably necessary to a cure.

HYDROTHORAX.

Collection of serous fluid within the cavity of the thorax; sometimes called Hydropleura, as the serous collection is usually within the sac of the pleura.

Some vague dispute has been held, whether dropsy of the chest is ever an idiopathic affection, and a few writers have unhesitatingly considered it as the mere result of pleuritic inflammation. This I regard as an error. Accumulations of fluid within the thoracic cavities, indeed occur from inflammation of the membrane, but are readily to be distinguished by previous symptoms. Besides this, they rarely affect more than one side, and are not attended with anasarca or ascites. Hydrothorax, which is connected with general hydropic diathesis, and which exhibits, without previous tokens of pneumonia or pleurisy, proofs of effusion, I treat of as one of the forms of idiopathic dropsy.

It is the disease of advanced life and of broken constitutions, for the most part. There is notable paleness of the face, dyspnœa, inability to go through any muscular exertion, orthopnœa. The general health is impaired, as in the other varieties of dropsy—there is a short dry cough—great restlessness at night, with occasional paroxysms of threatened suffocation. Anasarca, if not early present, almost always attends in the course of the malady; and ascites is also often added.

The *diagnosis* is difficult. We dwell on the dyspnœa and orthopnœa, so apt to come on with extreme severity in nocturnal paroxysms. There is often palpitation of the heart, with irregular and intermitting pulse—great anxiety and despondency. Exploration of the chest displays increase of fullness on one side sometimes, with loss or diminution of capacity for making a full and deep inspiration. There is loss of respiratory murmur over the most of the chest. In exploring we should carefully note the relation of this dullness on percussion, and the impairment of respiratory murmur, to the *position* of the patient. If owing to the presence of fluid in the cavity of the pleura only, they will be more notable at the lowest parts of the thorax, and change places when he rises and reclines. Fluctuation is said to be, but rarely, perceptible. On percussion a dull sound is returned. Bichat proposes, as a test, pressure on the abdomen, which increases very much the sense of suffocation.

Causes.—Those of dropsy in general, already enumerated.

Treatment.—Must be guided by the principles already laid down, as applicable to the other varieties of the disease. In the entonic form, the *lancet* should be used freely to subdue morbid excitement; but it should be recollected, that we must not make the pulse our exclusive guide in the resort to venesection, as it often remains unaccountably hard and full to the very last moment of life in hydrothoracic patients.

The employment of *purgatives* has been vehemently objected to. I would administer them in just such cases as require venesection, but with some caution. Nor must we expect the same obvious good effects from them as in ascites.

The *diaphoretics*—antimonials, seneka, &c. must be exhibited, as has been already advised in the analogous cases.

Diuretics are regarded as here specially applicable, and to digitalis is assigned the first place. *Squill* is useful, both in this way, and as an expectorant. The solution of supertart. potass. or an infusion of common parsley, may be used as ordinary drink.

Mercurials have seemed to me almost indispensable to the cure of hydrothorax. They should be administered in such small quantities, and at such long intervals, as to procure, if possible, their alterative influences, without the occurrence of salivation.

Opium, if it exerts no marked effect in the removal of the disease, lends a most admirable aid in relieving or palliating the sufferings of the patient. I prescribe anodynes freely, to diminish the intolerable distress of the sick man in his nocturnal paroxysms of dyspnœa.

External irritants to the thorax are of some value here. A succession of blisters will do service. The ungt. tart. antimon. has been recommended.

Paracentesis thoracis is occasionally performed—oftener by the physicians of the continent of Europe, than by American and English practitioners. I can see no reasonable objection to it, when the presence of fluid within the cavities of the pleuræ is clearly made out.

HYDROCEPHALUS.

Collection of serous fluid within the cavity of the cranium. The effusion may occupy various localities; it is most frequently found within the ventricles—occasionally, as we are informed by Cheyne and Golis, deposited in the very parenchymatous tissue of the brain itself—sometimes poured out upon the surface of the arachnoid—and in more than one instance on record, between the dura mater and the bony skull.

The nature of the disease is obscure, and has been the subject of much dispute. By many it is denied to exhibit any analogy with other hydropic affections, and considered as a mere phrenitis, an inflammation of the brain and its membranes, of which the effusion is an ultimate and uncertain or accidental result.

It must be acknowledged that such collections in the cranium are often preceded by symptoms which would seem to denote inflammation, but this is not always the fact. Congenital hydrocephalus is not rare, in which there is no proof of the precedence of inflammation; and most of the cases which develope themselves in early infancy, are free from any such indications as are supposed to be inseparably connected with inflammation. Besides this, instances are not wanting in which the symptoms which are believed to denote hydrocephalus, are mingled, or combined, or alternate with those of ascites and anasarca. Two such have

occurred to me in black children of nine and ten years of age, and a third in an adult, a physician, a friend and former pupil. Blackall offers us some facts. He has witnessed, as in the cases just alluded to, the metastasis of disposition to serous effusion from other parts to the head, and also the extension to that part of general hydropic disease.

On these grounds I regard hydrocephalus, and treat of it here, as one of the forms of dropsy.

It is customary with authors to follow the division of hydrocephalus into acute and chronic.

The former, it must be acknowledged, would seem by the very description to be a mere phrenitis; but it is after all not very definitely depicted, nor distinguished accurately from affections of the head, which do not issue in the same result—an effusion, namely, of serum within the cranium.

The precursory symptoms are various, some of them referring to derangement of the sensorial, others to disturbance of the digestive system. The appetite is capricious or impaired, the tongue foul, the breath fetid, the belly tumid and costive, or irregular, with occasional diarrhœa—the urine is scanty and high colored, and there is some febrile excitement. The face of the child is flushed and turgid—he is restless, sleepless, moans, puts his hand to his head, shrinks from light, or seems to suffer from pain in the ear. These tokens of acute disease having continued for a longer or shorter time, a more characteristic series of phenomena supervene, which are assumed to be produced by pressure of effused fluid upon the brain, as the former are attributed to inflammatory excitement of greater or less violence. The pulse becomes slow and unequal—there is stupor, alternating with screaming and jactitation—the vision is now obviously impaired—there is strabismus, with dilatation and immobility of the pupil—the child lies heavily, with the eyes half open. It can sometimes be roused for a moment so as to take food and drink, but soon falls again into a lethargic state—the hands are tremulous and raised frequently to the head—the lower limbs are paralyzed, or contracted and crossed—the bladder and rectum pass their contents without the consciousness of the patient—great emaciation ensues, and death is often immediately preceded

by violent convulsions. The duration of this stage also varies, but may be rated at from twelve to fifteen or sixteen days.

The diagnosis of this form of hydrocephalus is not possible before it has run into the second stage. The symptoms of the first are therefore deemed "precursory," as depending on conditions of disease, which may, or may not result in effusion.

Chronic hydrocephalus, it has been said, is often congenital. In such instances the causes are of course unknown; but as it occurs frequently in several children of the same parents, and has happened very often when a scrofulous taint is known or suspected to be present, many physicians consider scrofula as its most probable cause. When it occurs in early childhood, it may be either the result of the acute form, developed with less than fatal intensity; or it may happen at once and unpreceded by the symptoms of inflammatory excitement, described as belonging to the first stage. The parietes of the cranium yield, and an immense distention takes place, occasioned by the accumulation of fluid; the head becomes thus misshapen and too heavy for the muscles of the patient to support, requiring to be borne upon the shoulder of a nurse or laid always on a pillow. Fluctuation is distinctly perceptible. Pressure on the head is said to produce in some a complete stupor. The senses seem to be all lost or much impaired, the powers of voluntary motion are enfeebled, and convulsions of great violence sometimes shew themselves. When the hands are moved at all, there is picking of the nose—the teeth are ground together. As the case progresses, the respiration is affected, the legs are crossed and drawn up to the belly, the pulse becomes weak and intermitting, and at last ceases, or the patient dies worn out with tedious irritative fever and ulceration of parts, which bear the pressure of his weight. It happens, though rarely, that the brain accommodates itself to this morbid condition, and the patient drags out a long and wearisome existence, attaining mature age.

To the few such instances recorded in the books, I add a case on the authority of my friend, Dr. W. M. Lee, who saw the subject in Abbeville District, S. C. His head was twenty-eight and a half inches horizontal circumference—nineteen and a half inches from one meatus auditorius to the other—could not walk,

but trundled himself on a chair on rollers—conversed intelligently—general health good.

The *prognosis* of hydrocephalus is decidedly unfavorable. Few cases are recorded of recovery after the unequivocal development of the disease, by enlargement of the head and other signs of effusion, had taken place. Previous to this stage, however, and during the progress of the precursory symptoms or first stage, as it has been called, we are not without hope.

Morbid anatomy.—Water is found, as has been mentioned, in the ventricles, in the substance of the brain, between the membranes in which it is enveloped, and external to the dura mater. An instance of this last kind occurred to myself.

The brain is often found presenting all the marks of inflammation—engorgement of its vessels, softening of its substance, adhesions of opposite surfaces of its membranes. Occasionally, C. Smyth says frequently, nothing of all this is to be observed. It has been found pressed out, and in thickness not more than one eighth of an inch; it has been seen condensed and smaller than an egg.

Treatment.—By those who, with Rush, regard this effusion as a mere termination of phrenitis, venesection is placed at the head of our list of remedies. The jugular vein is selected and opened repeatedly. Others prefer the application of leeches.

Purgatives are employed freely by almost every practitioner; and in their continued effect, we place, I think, our best hopes of a cure. I prefer the combination of a resinous drastic, jalap or rhubarb, with an alkali—the carb. potass. or soda. To obtain the full influence of these remedies, a judicious perseverance is required.

Mercury is a fashionable remedy. It may be occasionally added, with advantage, to the cathartics prescribed.

I have no confidence in the class of *diuretics*, as applied here; but *digitalis* is recommended by Smyth, Withering, and others.

Antimonials have been used largely by Laennec.

Cold applications to the head are of great value, and should be persisted in. I prefer the frequent pouring of a stream of cold water upon the scalp, to any other mode.

Blistering the head is often resorted to. Caustic issues and setons are also employed, and in the last resort, paracentesis capitis has been repeatedly ventured on; and we have instances of restoration after thus relieving the little patient, related by Drs. Vose and Conquest.

SCROFULA.

The various morbid affections which are included under the above title, afford perhaps the best exemplification of the dependence of local disease upon morbid peculiarity of constitution or predisposition. This predisposition or diathesis is said to be so well marked by characteristic appearances of conformation and physiognomy, as to be recognizable before the actual occurrence of open disease. The skin is fair and soft, the hair light and silky, the eye blue and mild, and of gentle expression, the upper lip tumid and deeply fissured in the centre. A child of this constitution often exhibits precocity of mind, united to irritability and obvious debility of body. The cheeks flush readily upon muscular exertion or mental emotion, and fatigue is promptly induced.

Scrofulous affections are not, however, exclusively confined to individuals whose aspect has been above described, but are met with, and not unfrequently, in persons of dark hair, coarse skin, and brown complexion.

It prevails more in certain climates than others. Great Britain is particularly subject to scrofulous disease. Dry and warm regions are, comparatively, exempt from its presence.

Scrofulous inflammation, when it affects any other than the cutaneous surface, is apt to result in the secretion of a peculiar matter, which is, in some situations, mingled with much serum and pus, and in others, tends to condense or concrete itself into a solid body, known as a tubercle. These are developed in immense numbers in the lungs in scrofulous phthisis, and shall receive a particular description under that head. The children of parents who have labored under any of the known forms of scrofula, are very liable to be attacked by similar disease, and thus heriditary transmission is universally recognized as the *direct* cause of scrofula.

The predisposition is gradually built up, in the first instance, under the influence of a number of circumstances, which diminish the vigor of the system. The cold and damp air of any particular district of country; living in close ill-ventilated apartments; being fed upon unwholesome, scanty, and innutritious diet; defective clothing; sedentary or depressing occupations; want of personal cleanliness—all these, when acting upon large masses, are known to give rise in a notable proportion among them, and a still larger proportion of their children, to various maladies, which long continued observation has led us to consider as connected by a common character, and as depending upon a similar morbid state of general constitution.

Every tissue of the body is likely to be attacked by scrofula—the skin, the eyes, the glands, the joints, and the bones. Age modifies the disposition of particular structures to be affected. In early childhood, papular and squamous eruptions about the head and ears, ulceration and discoloration of the tunica adnata of the eye, and induration of the mesenteric glands, with tuberculous enlargement, are among its first tokens. Next, we have Morbus coxarius and white swelling of the knee, and at or before the time of puberty, glandular enlargements and tumors about the neck, and pulmonary tubercles. The lungs and bones continue to sustain a like liability through after life. It is worthy of remark, that not only is the *predisposition* transmitted hereditarily as above stated, but children have actually been born, laboring under scrofulous inflammation and pulmonary tubercles.

The *nature* of the original defect of constitution is not known. By some it is supposed to be seated in the digestive system. I rather ascribe it to improper action of the minute order of vessels, whose function it is to separate the materials of growth and nourishment, and the several secretions.

Scrofula also implies a contamination or deterioration of the fluids of the body. Sauvages considers the horse liable to scrofula. The disease which, in this animal, he entitles Scrofula farcimen, has been propagated by transfusion of blood from a diseased to a healthy subject, and even from a horse to an ass, by Professor Coleman.

The most common development of scrofula, or as it was formerly called King's Evil, consists in the appearance and growth of small hard tumors in the course of the lymphatics, and especially on the neck. They increase slowly, often becoming indolent and remaining long stationary, giving no pain, and attracting little attention. After an indefinite time they enlarge, and are evidently inflamed. Matter at last forms in one or more; not true pus, but a thinner fluid, containing flaky, curdy coagula. The tumors often coalesce, and their contents are discharged by ulceration, which leaves irregular and deforming scars.

The *treatment* is properly divided into the curative and prophylactic—the former suited to the management of cases, in which local inflammation, tumor and tubercle have been developed; the latter required where we have reason to anticipate or dread the occurrence of such local affections, either from known descent from scrofulous parents, or from the presence of those physiognomical peculiarities which point out the predisposition.

Mercurials have been much employed in the cure of scrofula. They require to be administered in very minute doses, and watched with great care. If ptyalism be allowed to supervene, injury is always done to the patient; but with the precautions suggested, mercury will be found among our best remedies. I prefer to exhibit the corrosive sublimate, in quantities indefinitely small.

Cathartics, used in mild formulæ, with patient perseverance, are of much benefit. I combine them with some *alkali*, as there is, generally, notable tendency to fermentation and acidity of stomach.

Tonics are greatly confided in. The chalybeates are selected by some physicians, cinchona by others.

The *baths* are valuable auxiliaries—the cold should be chosen, if it is pleasant to the patient; otherwise the tepid bath.

The most precise cleanliness is necessary—of the person, the clothes, and the chamber. Where local excitement runs high, and still more, when there is general sympathetic irritation, articles of stimulating quality must be avoided; nay, even abstinence may be, for a short time, necessary. Except at such periods, a nourishing diet should be allowed.

Burnt sponge has been long in use for the cure of scrofula. It contains some of the alkalies already spoken of, and the peculiar agent *iodine*, which is now regarded as the chief remedy for all scrofulous disorders. Some caution is, however, necessary in its employment. I prescribe the aqueous solution, exceedingly dilute, (Lugol's,) and in this form have seen it productive of extensive benefit. The new preparation known as the deut-iodide of mercury and potassium, promises to be highly useful in all modes of scrofulous affection.

The combination of an indefinitely small proportion of iodine with some purgative salts minutely diffused in large quantities of water, as in many mineral springs both in Europe and America, deserves to be valued as our best remedy for all the incipient developments of scrofulous disease, and perhaps for all its stages, except in the instance of pulmonary tubercle, where the effect is thought questionable. The *muriates* or *chlorides* have been generally extolled—common salt, the muriates of lime, barytes and magnesia. It is to the mixture of some of these in sea water, that its acknowledged utility is to be ascribed. It is one of the best purgatives when recent and pure.

The *narcotics* deserve to be mentioned. They are all serviceable in relieving the symptomatic irritation, arising from the local derangement. I confide in opium, others prefer conium and hyoscyamus.

Of the local treatment of scrofulous tumor and inflammation. In some of its developments it needs active depletion by leeches and cupping. Glandular swellings on the neck, &c., should at first be soothed by soft poultices, and may afterwards be discussed by the application of *iodine* ointment, or if very hard and indolent, by blistering and stimulating embrocations.

The *prophylaxis.*—A child born of a scrofulous mother should be placed in the care of a healthy wet nurse. Removal from low damp situations must be advised. The residence, and especially the sleeping apartment, must be well ventilated and kept neat. Children should not only live much in the open air, but should always have free access to abundant sun-light. The importance of light to the due development of both animal and vegetable life, cannot be exaggerated. Precise cleanliness of

person and clothing must be enjoined—bathing frequently practised—exercise in the fresh air is essential to health and vigor—the diet must be plain and generous. Warm clothing in winter must be worn—sedentary occupations avoided.

MARASMUS

I place here, because it is rare comparatively to meet with any other form of atrophy, than that which depends on scrofulous disease. Marasmus rarely attacks adults; children are generally affected at the time of weaning—hence the phrase Atrophia ablactorum. It seems reasonable to account for this, by the supposition, that their imperfect digestive organs are unable to bear a change of food, yet it would rather appear to be independent of the change, and a mere result of their arrival at this age, for it is of no benefit to keep them at the breast beyond the ordinary period. It is almost exclusively confined to children of scrofulous parents, or such as are subject to the causes formerly detailed, which tend to develope scrofulous disease.

Marasmus comes on with general languor, paleness of countenance, anorexia or capricious appetite, bowels irregular but soon becoming loose, with stools thin, discolored, offensive and acrid. The tongue is furred, with occasional vomiting—the inside of the mouth and corners of the lips ulcerate—the gums are spongy, the belly is tumid, the flesh of the limbs soft and flabby, the emaciation progressive, and at last extreme. The duration of the case varies, but it is often exceedingly protracted.

Autopsy.—Dissections show the intestines empty and contracted, or containing dark ill-conditioned secretions; the liver perhaps firmer and heavier than usual, and the mesenteric glands enlarged and indurated.

The last circumstance denotes the character of the case with sufficient clearness. The treatment is such as has been already indicated, with certain modifications, hereafter to be pointed out under the head of Cholera Infantum.

DISEASES OF THE ORGANS ENGAGED IN THE PERFORMANCE OF DIGESTION.

DYSPEPSIA.

This term is expressive of a definite disorder of the stomach; it is not synonymous with the word indigestion. The stomach under a great variety of morbid influences, refuses to dissolve or digest food taken into it; in fevers, it is common to see among the matters vomited in the early stages, articles of diet swallowed many hours previously. Mental emotion has the same effect; but the transient and symptomatic derangement of the stomach, which in these cases unfits it for the solution of food, differs notably from that condition of the organ of which we are to treat, and which is among the most frequent of the diseases of civilized and refined life. *Dyspepsia*, when it occurs as an independent and idiopathic affection, is the result of an imperfect secretion of the gastric fluids, so important to the physiological and chemical changes of food taken. When this occurs as the effect of previous disease of the stomach, as for example, inflammation, it clearly comes under another head, Gastritis, acute or chronic; and hence the incorrectness of confounding them, as has been done by Parry, Broussais, and Wilson Philip. Inflammation is a very frequent consequence of dyspepsia, and the last mentioned writer has treated of it as a sort of second stage.

It is idle to assume *hyperexcitation* as the only cause that can impair the power of any organ. When an organ has been subjected to the action of an excitant, two sets of effects follow, though not necessarily diseased, may be equally morbid in nature and ultimate results. It is first stimulated; its capacity for action is, in the second place, impaired by exhaustion—enfeebled, relaxed. Hence the direct agency of a *sedative*, may produce results closely analagous to, if not identical with, the influence of a *stimulant*. We find *dyspepsia*, in conformity with these views, common to two classes of persons; sedentary men, on the one hand—literary persons, students, the poor who live on scanty

innutritious diet; and on the other, debauchees, the intemperate and gluttons. It is not probable that the pathological condition of the stomach is exactly the same in these; but the symptoms exhibited, are very similar and strikingly analogous.

Dyspepsia may be then defined as a local disorder of the stomach, manifesting itself by the imperfect, slow, and painful *solution* and *digestion* of food taken. Acid eructations, heartburn, a sense of painful fullness or distention and weight, nausea and frequent vomiting, gastrodynia, emaciation, anorexia or defective and irregular appetite, are among the most general symptoms. From the universal sympathies which connect the diseased organ with the rest of the system, we have an infinite variety of morbid phenomena in the cases which present themselves. There is flatulence, with severe colics; in many, obstinate constipation; in some, diarrhœa of various character; muscular debility and languor, great depression of spirits, vertigo, headache, dim, depraved and (rarely) double vision, obstinate vigilance and nocturnal restlessness, vapors and hallucinations, palpitation of the heart, with slow and sometimes intermittent pulse.

One of the most ordinary results of a continuance of dyspepsia, is the development of a chronic gastro-enterite, which is considered indeed by W. Philip as a second stage, and the symptoms of which are often, but improperly, (as even by Parry himself,) enumerated under our present head.

Dyspepsia proper is purely a functional disease. Insufficient excitement of the organ, as in persons ill-fed, and in students, who labor under undue determination to the brain, occasions a defect of determination to the organ, imperfect innervation, and impaired or depraved secretion. The same state of deranged innervation, results from irregular and excessive excitement, as in sots and gluttons, and in many others, who without any imputation of moral impropriety, commit inadvertent excesses in quantity and quality of food and drink.

Another consequence of defective innervation—want of determination to the stomach, deficient or exhausted excitability, is the impairment of the contractile power of the organ. Hence its peristaltic motions, upon which depend the due movement, mix-

ture, and solution of food, are feeble and ineffectual. All these conditions are comprised in the meaning of the word Atony—the phrase, loss of tone of the stomach—and constitute the form of derangement, which we call dyspepsia.

The causes of dyspepsia are numerous and varied. With Cullen, I divide them "into—1st. Such as act directly and immediately upon the stomach; and 2d. Such as act upon the whole body or particular parts of it, but in consequence of which, the stomach is chiefly or almost only affected."

Under the first head, I mention imperfect mastication of food. The hasty eating, which all foreigners regard as strikingly characteristic of Americans, helps to account for the frequency of dyspepsia, and for the badness of the teeth—a cause in turn, as well as an effect, of gastric derangement. Quantity of food—excess, as well in eating, as in the use of stimulating drinks. Quality of food—as when improper and innutritious articles are used, or badly cooked diet. Comparatively speaking, however, the quality of food is very rarely a cause of dyspepsia, as may be inferred from the immensely varied diet of different nations and tribes of men.

Under the second, modes of life and occupation may be enumerated. Indolence—a sedentary habit—undue determination to the head, as in students—indulgence of the passions—labor in oppressive postures, and connected with confinement to close and impure air, subjection to care, and protracted anxiety.

Treatment.—Most important to remove the cause; this done, the disease disappears. Diet should be nutritious, moderately stimulant, plainly but perfectly cooked, and taken at distant intervals. Too great abstemiousness may injure as much as excess. The power of any organ is improved by its moderate exercise. A reasonable variety of food should be allowed, as the appetite palls under a wearisome monotony. Nor is it possible that one uniform and exclusive diet, whether of bran, or milk, or porridge, or beef-steak, should suit all subjects and every condition of dyspepsia. The fluid taken should be plain, and in moderate quantities. Narcotics and stimulants must never be used habitually, though they may be occasionally and transiently serviceable, when judiciously prescribed.

Studies, and sedentary and confined occupations must be abandoned—exercise taken freely and actively in the open air, and conjoined with amusement. Medicines should be used sparingly, and only for transient purposes. Costiveness may require occasional and mild cathartics, or may be obviated by enemata and frictions over the abdomen. Acidity with heartburn, may be relieved by alkalies, or the mineral acids in small doses. Gastrodynia is relieved by aromatics; or if these fail, and the pain is severe, by anodynes. Tonics are much employed; the metallic are best, such as iron and bismuth. It is satisfactorily ascertained by Beaumont and others, that the hydrochloric or muriatic acid, is an essential constituent of the gastric or digestive fluid, and we thus account for its utility in dyspepsia. The same remark applies also, but with less force, in respect to the acetic acid, and the chloride of sodium or common salt. Mercury has been used with advantage, when there was a defect of secretion, but ptyalism does harm. Prussic acid is highly recommended by Elliotson.

The mineral springs—those which contain purging salts, and carbonic acid, and the chalybeate are often of service.

GASTRITIS.

Acute gastritis is recognized by the presence of severe pain at the epigastrium, with a sense of heat or burning, nausea, thirst, oppression, usually repeated vomiting. Pressure on the stomach cannot be borne; the pulse is hard, tense, frequent, small and contracted; the skin hot and dry, the tongue red or covered with a thin white coat; there is much anxiety, with mental dejection, sighing, restlessness, and prostration of strength. As the case progresses, the tongue, cheeks and esophagus inflame and ulcerate, the pulse sinks, the eye is red and suffused—there is low muttering delirium. Black vomit is often ejected—respiration, as well as deglutition, is difficult, and death soon follows.

Prognosis unfavorable. Depends somewhat upon the cause. Is more likely to terminate fatally, when supervening on previous disease.

Causes.—The acrid poisons, whether mineral or vegetable—mechanical violence externally applied, exposure to severe alter-

nations, violent passions, and the metastasis of other inflammations, as in gout, &c.

Inflammation of the stomach may produce suppuration, it is said, and gangrene. I have seen no instances of the kind. In death, from gastritis, the mucous tissue is found deeply injected, softened as by maceration—sometimes, but rarely, eroded.

Treatment.—The indications are obvious and undisputed. If it is known that any poisonous or acrid matter has been taken into the stomach, the organ must be relieved by the employment of a quick emetic, or the stomach-pump, and the proper antidote, if at hand, administered. Beyond this, and from the beginning in spontaneous gastritis, the most prompt and energetic depletion is called for. Venesection must be carried to the utmost extent that can be borne, and local abstraction of blood by leeches and cups, at and near the epigastrium, assiduously resorted to. Warm poultices should be applied over the belly, while ice and cold fluids are allowed to quench the thirst of the patient. We may thus at once subdue the disease in some cases. If not promptly and completely successful by these means, we must soon have recourse to the mild and unirritating cathartics, such as calomel, Epsom salt, and oleum ricini. The first will often remain upon a stomach so irritable, as to reject almost every thing else; and as soon as it operates actively, will be found to be highly beneficial. The cathartic action must be aided by large enemata. If the patient sink rapidly, and life seem ebbing away, I would not hesitate to exhibit stimulant and nutritious fluids. Spirit. terebinth. has been highly extolled. Camphor, suspended in mucilage, may be given. Opiate preparations are often soothing and useful. I have succeeded in bad cases by endermic medication with the preparations of morphine, sprinkling them upon the blistered surface of the epigastrium. The infus. cinchonæ is unobjectionable as a tonic. In the mean while we aid in sustaining the feeble powers of life, with wine whey, milk punch, &c.

During convalescence, great care and prudence are necessary. The diet should be fluid or semi-fluid, and consist chiefly of vegetable materials, with the exception of milk, which if properly diluted, may be taken safely by almost any one; and of eggs, raw or very slightly boiled. Flannel should be worn next the skin,

and all exposure and excess abstained from with resolution and perseverance.

Chronic gastritis may supervene so gradually, and develope itself so obscurely, as to exist for a great length of time without being detected, the sufferer being supposed to labor under dyspepsia or hypochondria. It is, as I have said, often a consequence of the former disease, and is hence frequently met with in the studious and sedentary, though prudent and temperate, as well as in the glutton and the sot.

Autopsy shews, that it may proceed even to the extent of erosion and ulceration of the mucous coat of the stomach, without having been suspected.

Symptoms.—In general the patient complains of a sense of distention, increased after a meal, especially if of stimulating food—increased also after long fasting. In its farther progress there is nausea and oppression, extrication of gas, thirst, a tongue smooth and fiery red, and ultimately covered with aphthous ulcers, as on the lips, cheeks, and gums—these latter being also swollen and spongy. The pulse is small and weak; a febrile exacerbation may be observed at night, with restlessness, and jactication, and hot dry skin; there is emaciation and muscular debility, with dejection and vacillation of mind. There is often, but not always, pain at the epigastrium, augmented by pressure. Death is preceded by atrophy and diarrhœa.

Treatment.—If the patient's strength will admit, we resort to the lancet; but his debility and emaciation will often render this resource improper and unavailable. Topical depletion by cups and leeches is indicated, and should be repeated as often as it can be borne. Abstinence from solid and stimulating food, must be strictly enjoined, and the diet consist exclusively of the mildest and most unirritating articles. The mucilages are generally advised, but in some cases produce great distress, by occasioning fermentation, flatulence, &c. Here, as an alternative, I allow milk diluted—eggs raw or slightly boiled, and thin gelatinous broths. The bowels must be kept soluble, but by gentle means.

Calomel, in small doses, will scarcely disturb the most irritable stomach, and will do much service both as an evacuant and an alterative. Ptyalism, if slowly induced, and not carried too

far, will prove highly beneficial. The *alkalies* are almost always useful, whether by their chemical properties alone, or through other influence, I will not pronounce. The combination of carb. sodæ with rhubarb, will suit many patients, and seems to exert a tonic and restorative power, in addition to its laxative and antacid quality. We should not fail to advise, when it is in the power of the sick, a resort to our chalybeate, saline and carbonated mineral springs; but it is to be carefully recollected, that in the latter stages of these cases, where chronic diarrhœa has come on, and the intestines have lost their tone, all laxative waters will do immediate and irreparable injury.

The mur. tinct. ferri is among our best tonics here; the acet. plumbi is used, in union with opium in proper doses; the mist. cretacea, with kino, will be of service.

ENTERITIS.

Inflammation of the intestines, often combined with the subject of the previous lecture, forming the *gastro-enterite* so much talked of at the present day—occasionally, yet perhaps not very commonly, met with separately.

Symptoms.—Comes on usually with pain about the navel, fixed and extending over the whole abdomen, and attended with nausea and a sense of heat and burning, with great dejection of mind and prostration of bodily strength. The patient lies on his back, with his knees drawn up, rarely tossing the body, and shrinks from any pressure made upon the belly. This test, however, is not so strictly diagnostic, as some have affirmed. I have seen two fatal cases in which pressure was borne with indifference. The countenance expresses great distress and anxiety. The pulse is frequent, tense, chorded, contracted. I have seen black matter ejected both by vomiting and by stool. Constipation is almost always present at first, but is succeeded by an irritating diarrhœa in bad cases, and with varied and highly offensive discharges. At last, the strength and pulse fail—the abdomen becoming distended and tympanitic, and exquisitely tender to the touch; the tongue is red and smooth and dry, or covered with ulcers; the breath is fetid, and the patient sinks with low muttering delirium.

Diagnosis.—Enteritis may be confounded with colic and peritonitis—from the latter of which, indeed, it is difficult to distinguish it; but this is a matter of less importance, as the indications of cure, and even the details of the treatment, are so similar in the two sets of cases. In peritonitis, the pulse is more voluminous—there is less prostration and nausea, the abdominal tenderness is more urgent from the first, and the alvine evacuations of less morbid character. In colic, the pain is less fixed—there are intervals of ease more distinctly marked—the pulse is little, if at all, affected—and more immediate and greater relief is experienced from alvine evacuations and discharges of wind.

Autopsy.—Like gastritis, enteritis brings on the fatal termination, in a majority of instances, by its oppressive influences upon the general constitution, and the local lesions are not very remarkable. They consist in engorgement or congestion of the vessels of the mucous intestinal membrane—the duodenum among the small, and the colon among the large, being most obviously affected; the membrane is softened usually in proportion to the discoloration. It is sometimes, however, pale and soft, as if macerated. *Ulceration* sometimes occurs, and the intestinal parietes are now and then entirely perforated. I have known two instances of extensive *gangrene* of the colon and rectum.

Causes—the same as those which produce gastritis. Intestinal inflammation more frequently follows exposure to cold and moisture, and is less likely to be brought on by acrid ingesta.

Treatment.—Venesection boldly resorted to, but still with due caution. Topical blood-letting by cups and leeches over the whole abdomen; ice and cold fluids allowed internally, while warm fomentations and poultices are assiduously used externally.

The question as to the exhibition of *cathartics* in enteritis, has been long and warmly contested. I have no hesitation in employing purgatives, carefully selecting such as are least likely to irritate and annoy. Nothing seems to give more prompt relief to an inflamed mucous membrane, than abundant secretion from its own surface. I prefer to administer the Epsom salt, in alternate doses with calomel—a combination at once mild and active. When the bowels have been well moved, I discontinue the salts,

but persevere in the use of the *mercurial* until a gentle ptyalism is induced, which is invariably beneficial. Large enemata in the mean while, will aid our purgative, and render smaller quantities more effectual.

When topical depletion can no longer be borne, and the patient has become familiar with the fomentations, revulsion may be farther accomplished by the irritation of a blister, which should be large enough to cover the whole abdomen. Others may with the same view, be applied to the thighs and legs, if necessary.

As in the latter stage of gastritis, stimulants may be occasionally employed with obvious advantage. The spirit. terebinth. is chiefly preferred. Camphor and opium are also of unquestionable benefit.

Chronic enteritis sometimes occurs spontaneously, and often follows as the consequence of the acute form. It is characterized by the same symptoms as described above, but developed more gradually and with less intensity.

The causes, results, and treatment, are likewise similar.

Convalescence from intestinal inflammation, must be watched with peculiar care, as there is no disease which leaves on its subsidence a stronger tendency to recurrence. The clothing should be warm, with flannel over the abdomen; the diet carefully regulated, and all excess strictly avoided.

MILK-SICKNESS.

This is a peculiar form of disease, met with chiefly in the mountainous districts of the southern and southwestern states.

The *cause* is not clearly made out, but whether aerial, mineral, or vegetable, seems to be limited in its production and influence. It never directly affects the *human* subject, but attacks chiefly, though not exclusively, the cow and the horse. The latter soon dies if not efficiently aided; the cow may live, and is more likely to do so, if giving milk; but the milk, butter and flesh become poisonous, exciting in those who make use of them as food, a combination of symptoms indicative of an inflammatory affection of the stomach and intestines—a true gastro-enterite. The localities subject to the presence of this undetected agent, are well

known and may be defined, and fenced in against the intrusion of cattle; it is said, that when cultivated, they lose their poisonous qualities.

Symptoms of milk-sickness. Within a short time after the patient has taken the deleterious milk, butter or flesh, he is oppressed with languor and lassitude—soon followed by nausea and vomiting, with pain, burning and oppression at the stomach. The thirst is urgent, the skin hot and dry, the eyes are red and suffused and glassy; a peculiar odor exhales from the body. The bowels are obstinately constipated. The pulse, at first little changed, becomes frequent and contracted. Fever, with low muttering delirium, supervenes, and the patient sinks with symptoms closely resembling those of Typhus gravior. The convalescence is slow and imperfect, and apt to be followed by long debility, by dyspepsia, and other gastric disorders.

The *treatment* does not seem to be well agreed on. The stomach, if not thoroughly cleansed by spontaneous vomiting, should be well emptied of its injurious contents by ipecac. or other mild emetic, with draughts of warm water. If the pulse and strength admit, venesection must be resorted to; and at any rate topical depletion, by cups and leeches, will be required. The bowels must be actively moved by mild purgatives. The oily are preferred; and in neighborhoods subject to this disease, bear's oil is confided in as a sort of specific remedy. Oleum ricini and calomel will answer in combination, or alternately, every purpose; and if the disease be not fully subdued, the mercurial should be urged to the extent of a light ptyalism.

During convalescence, and indeed for an indefinite period after it, great care must be taken as to diet, and all exposure and excess rigidly abstained from.

COLIC.

This is one of the most frequent and painful of human diseases, but is, fortunately, among the most manageable and least fatal. It has been divided and subdivided into a great number of species and varieties, in reference to the causes which give rise to the attack, and the consequences which may attend it. I shall treat

of it under *three heads*—1. Flatulent colic; 2. Bilious colic; 3. Colica pictonum.

1. *Flatulent colic* presents the following symptoms: pain in the bowels, with a sense of twisting and griping, especially about the navel; nausea, costiveness, a feeling of distention, which in most cases, really supervenes after a time with tympanitic resonance of the belly, giving rise to much general distress, dyspnœa, &c. The pulse, unaffected at first, becomes in a few hours quick and frequent—pressure, which early in the attack was sought for, cannot be borne—the vomiting is more and more urgent—and if stools have not been procured, fecal or stercoraceous matter is ejected from the mouth, forming the *iliac passion;* nay, this inversion of the intestinal peristaltic action is occasionally so complete, that glysters are vomited up; cold sweats exude from the skin, and the patient sinks, worn out with his intolerable sufferings. Or the irritation runs on into the production of exquisite enteritis, with gangrene or ulceration.

Post mortem examination shows sometimes little or no alteration in the parts affected—sometimes constriction of a portion of the intestinal tube, with distention of the part immediately above it, and sometimes distention without any such constriction. Not unfrequently there is found intussusception of one portion of the tube within another, with strangulation of the part received, and its consequent mortification.

The *causes* of colic are numerous and much diversified. The presence of crude, acrid, indigestible food—long fasting—exposure to cold and moisture—vegetable matters specially liable to fermentation. But the secretion of gaseous and aerial matter, or of a fluid having such affinity for caloric, as to take on the gaseous form instantly on its secretion from the intestinal surface, seems highly probable in colic, besides the extrication of air from fermenting vegetables.

While treating a patient for scarlatina in 1831, I saw three violent paroxysms of flatulent colic brought on at intervals of twenty-four hours, by enemata of the simplest character—nothing but water, and that in very moderate quantity, having been taken in the mean while by the sick man, who had been managed strictly on the expectant system.

Pathology.—All circumstances seem to me, to establish the belief in the essential and invariable presence of spasmodic constriction of some portion of the intestinal tube. The mere loss of muscular power and the cessation of peristaltic action, with the consequent distention of a section of the tube, as supposed by Abercrombie, does not account for the symptoms—the pain, the constipation, the obstruction of the passage of air, the intussusception and strangulation of the received portion of gut. Nor is the occurrence of stercoraceous vomiting or the ejection of enemata by the mouth, at all capable of explanation upon Abercrombie's doctrine of mere muscular paralysis with consequent passive detention, for this would as much impede the reversed or anti-peristaltic as the normal or peristaltic movements In hernia, where the phenomena are very similar, we know they depend upon such a stricture, and are readily relieved by its mechanical division.

To these arguments, *a priori*, we add the following, *a posteriori:* If distention be the essence of the disease, it is impossible to account for the undoubted utility, nay, the immediate efficacy of relaxants and anti-irritants in its removal; yet the lancet and opium are our principal remedies, and the warm bath and tobacco, and the antimonials, are highly recommended by Abercrombie himself.

Treatment.—In the early stage, the domestic administration of aromatics, and so styled antispasmodics, often succeeds completely, as mint, ether, camphor, &c. If the stomach have recently received any suspicious articles of food, or if it be loaded with a full meal, it should be emptied by an active emetic. The warm bath and opium are almost universally indicated. Purgatives, at this stage, are hurtful, but enemata are highly serviceable. If the pulse rise, and the abdomen become tender on pressure, the lancet must be used freely, and cups or leeches applied to the abdomen, which should be covered with warm fomentations or poultices. Mild laxatives are now proper—oleum ricini with tincture of opium, or calomel and opium in moderate doses, will be of evident benefit. By such means as these, assiduously and perseveringly employed, we may almost always prevent the obstinate constipation, and violent intestinal and gastric disturb-

ance so often described, and which most frequently appear to be consequences of harsh and ill-judged management. If relaxation be aimed at, it can be most efficiently accomplished by the employment of tart. ant. and tobacco in enemata. Croton oil rubbed on the belly, or on the tongue, will, it is said, operate actively on the obstructed bowels, in difficult cases. I have succeeded in De Haen's method, by the mere mechanical distention of the lower intestines, by large quantities of tepid water thrown up steadily from a syringe or inverted stomach pump. The use of mechanical deobstruents by the mouth, such as gold and silver pills and crude mercury, I mention only to reprobate.

2. *Bilious colic*, a modification of ileus, which owes its characteristic peculiarities to the cause producing it, to the state of the system of the subject, and to the season of the year in which it occurs. It is met with in summer and autumn—attacks persons of "bilious habit;" those, namely, who are subject to hepatic affections—and is attributed to the influence of malaria. The immediate irritation of the intestines is, probably, excited by the entrance into them of a vitiated and acrid bile; and in all the attendant circumstances, there is an obvious analogy with ordinary autumnal remittent.

The access of bilious colic is often accompanied with a febrile chill, which is succeeded by flushing of the face, heat, and dryness of the skin, great thirst, and a full, hard, and frequent pulse. The vomiting, which is urgent, brings up bile, with morbid secretions, and there is great heat and oppression at the pit of the stomach, with intense pain over the whole abdomen; obstinate constipation often attends, with tormina and tenesmus.

Treatment.—Venesection is obviously required, and must be promptly carried to as full an extent as the strength will allow. Opium cannot be dispensed with, and is demanded in free doses to relieve the sufferings of the patient. Cathartics may be given alternately, or in combination; but there is much difficulty in procuring their operation. I prefer to employ large quantities of calomel and opium together, aiding their effect by proper enemata. In the mean while, the warm bath should be resorted to —the abdomen cupped, and fomentations or poultices applied. When the intestinal constriction and obstruction are overcome,

the case usually requires to be farther treated as a *bilious remittent.*

3. *Colica pictonum—Rachialgia—Painter's colic.*—This gastro-enteric affection is always attributable to the poisonous influence of some of the salts of lead—a metal so widely employed in the arts of civilized life, that all are liable to be, in their turn, acted upon by its peculiar effects, which are in many cases developed very gradually, and in a chronic form.

Symptoms.—Rachialgia commences with a dull pain at the pit of the stomach, extending downwards and fixing with great severity at the navel. The abdomen becomes tender, and is drawn backward and flattened, with much pain in the loins and back. There is obstinate costiveness, with occasional inclination to go to stool, and usually, but not always, nausea and vomiting. The pulse is small and tense and frequent, with headache, restlessness, and dejection of mind. The patient is emaciated and feeble, and prefers a bent posture, leaning forward. Epilepsy supervenes occasionally—but much more frequently, a peculiar paralysis of one or both of the upper extremities, with flaccidity of the wrist and hand, and wasting of the arm.

Autopsy presents no uniform appearances. The mucous surface of the intestines is generally pale. Sometimes, but not often, the usual results of inflammation of this tissue, and of the peritoneum, are met with. The bowels are in some places contracted, in others, irregularly distended.

Treatment.—Opium is the principal remedy, and must be employed freely from the first—given in full doses by the mouth, *mixed in enemata*, and applied to the surface in poultices and fomentations. After a time, cathartics must be used alternately or in combination with it—the mildest being, for that reason, the best, if at all efficient. Oleum ricini, Epsom salt, and calomel, are usually preferred. If the pulse and strength admit, the lancet may be employed, and the belly cupped or leeched.

In protracted cases, alum and powdered nutmeg, have been highly recommended. Epispastics are also advised to be put on the abdomen and thighs successively. During convalescence, a flannel fold and bandage should be worn around the trunk of the body, and the diet carefully regulated.

The paralysis of the arm and hand, above described, is best relieved by supporting the limb in a carved splint, well fitted to it; while we administer calomel and opium in small doses, and with perseverance, until a gentle ptyalism is induced.

In obstinate cases, strychnine is said to have been exhibited with a favorable result. The nitrate of silver has received similar eulogy also. Locally, the cold affusion may be of service; but more is hoped for from the assiduous employment of electricity and galvanism.

CHOLERA.

It is necessary to treat of this affection of the stomach and bowels under the separate heads of—1. Common or sporadic cholera; 2. Epidemic or malignant cholera. The *first* is among the most ordinary diseases of all climates and seasons, and though alarming by its suddenness and violence, yet fatal in but a small proportion of cases; the *second*, on the other hand, though generally regarded as identical in nature and pathology, has spread the utmost dismay throughout the civilized world, by its fatal malignity and the wide extent of its career. Since, in the early part of the present century, it attracted attention in British India, it has every where exhibited a proportional mortality almost beyond example.

1. The symptoms of *common cholera* are, to every one, familiar. Vomiting and purging, with pain and cramp of the stomach and limbs, great prostration of strength, cold and clammy skin, and extreme anxiety and dejection of mind. Death may sometimes occur from the immediate loss of strength, which follows the immoderate evacuations upwards and downwards; it sometimes happens too, that when these have subsided spontaneously, or have been checked, a true gastro-enteritis supervenes, with fever of low irritative type.

The *causes* of cholera are numerous. Crude or indigestible food taken into the stomach, raw or half-cooked or putrescent vegetables, fruit in excess or unripe, and some fruits by their acrid quality, ices and confections in undue quantity, shell-fish to those unaccustomed to use them, a supper of mixed materials taken just before going to bed, exposures to alternations of temperature, and to cold with moisture. From its more frequent

occurrence in autumn, and in low hot regions, it is usual to speak of malaria as among its causes, and to regard it as occasionally the effect of the flow of a vitiated and acrid bile into the alimentary canal, and facts seem to me to justify the opinion. Many of our medicines (as tartarized antimony, &c.) produce it readily; and a very severe form of it supervenes upon repelled eruptions, and follows sudden and careless exposure after the subsidence of the exanthemata—measles especially.

Autopsy displays nothing uniform or explanatory. When the case has been of brief duration, little trace of disease is left. If more protracted, there are obvious marks of inflammatory irritation of the gastro-enteric mucous surface, with occasional extension of inflammation and its results, to the peritoneum.

The *prognosis* is, for the most part favorable, provided the patient be of ordinary vigor, and the case be early treated with proper attention. If, on the other hand, it has been neglected or injudiciously managed, and especially, if symptoms of gastritis or enteritis have made their appearance, the danger has become serious.

Treatment.—In a great majority of instances, *opium* is of itself sufficient to calm the gastric irritation, from whatever cause arising, and to subdue the disease. With Sydenham I prefer "liquid laudanum" to any other formula; it should be given in full doses, and if not retained when swallowed, should be thrown up the rectum in a mucilaginous enema, while fomentations or poultices mixed with it, are applied to the belly. Sinapisms should be laid to the wrists and ankles; and if the strength fail, stimulants may be required, as ammonia, ether, camphor, and brandy. In general these remedies will be found sufficient; but if the relief thus secured be imperfect, some febrile excitement manifesting itself with menace of gastric and intestinal inflammation, the treatment already advised under such circumstances, must be promptly and assiduously instituted.

2. *Malignant or epidemic cholera.*—To the symptoms above recounted, as belonging to cholera generally, we are to add, in the description of this terrible pestilence, certain striking phenomena, which some consider indeed as peculiar to, and characteristic of it.

The *evacuations* are of almost uniform appearance, consisting of a well known serous fluid, with minute whitish flakes, strongly resembling rice water or thin gruel. The *spasms* are extremely violent, contracting with severe cramps, almost every muscle of the body. The *blood*, when drawn from a vein and examined with chemical reagents, is found to be deprived, in great proportion, of its serum and the salts usually contained in it. The stage of *collapse*, into which patients often sink, is remarkable. It seems to me to be a state of true capillary paralysis. The surface is quite *blue* or livid, or as I saw it in one case, of dark mahogany or bronze color; the skin is as cold as after death, with a clammy moisture, while the patient often complains of intense heat; the hands and feet are shrunken and corrugated, as if sodden a long while in water. The urinary secretion is, in bad cases, very much diminished or even totally abolished. The voice fails or sinks to a husky whisper, described as the *vox cholerica*. The *progress* is fearfully rapid, patients often dying within a few hours, and in some few of the malignant attacks, in a still shorter period.

The form assumed is somewhat modified in the different localities invaded. In some places, we find spasm more prominent; in others, the serous evacuations are more profuse;—some are favored with a benign alarm from premonitory symptoms, as diarrhœas, &c.; while others are overwhelmed with fearful promptness into collapse. The consecutive febrile stage was in France and England, a more common sequela; in other countries, it has been met with but seldom, comparatively. Instead of it, I have noted in many instances a strange and peculiar condition. The patient is drowsy, but not comatose; dull, but not incoherent. The pulse is very soft, full and slow; the pupil of the eye somewhat dilated; the tongue and mouth dry, with much thirst. Respiration is extremely slow, and the breathing sometimes stertorous, with moaning or muttering. No pain is complained of; the stomach and bowels are quiet; the strength fails rapidly, so that the subject is apt to fall into syncope on being raised from the recumbent posture. He must be called loudly or shaken to arouse him, but when awaked speaks with unexpected promptness, clearness and alacrity. Blood, when drawn,

is very dark, coagulating slowly, with little or no serum. Dr. Keir, of Moscow, describes a similar set of symptoms, which he regards as denoting "a congestive sub-inflammatory state of the brain and spinal cord."

Causes.—A peculiar distemperature of the atmosphere, in nature and origin absolutely unknown, is assumed to be the generating cause of cholera, when prevailing in this malignant and *epidemic* form. I am of those who regard it also as *contagious*, and attribute its extension, chiefly to this power or quality. The question is hotly contested, but there are certain facts which can be explained and understood no otherwise than by reference to such a property of communicability. We do not, however, doubt or deny the atmospheric distemperature supposed, although the mode in which such contamination arises, or is effected, has not yet been explained. This pestilence is, to a degree, unprecedented in the history of epidemic diseases—independent in its prevalence, upon any of the ordinary influences of place, season, or climate—pursuing its ravages with equal sway "under the burning line," and amidst the wintry snows of Russia.

Prognosis.—The danger seems to be proportioned to the collapse—that is, the circulatory stagnation and general loss of strength. The inordinate evacuations are sometimes well borne, and do not show the greatest degree of risk, unless attended by notable prostration. The absolute non-secretion of urine is among the most fearful tokens, and its resumption, on the other hand, shows a change for the better. So, also, does the recovery of the natural tone of voice, when it has been much altered. The intensity of spasm has sometimes proved fatal; but we are not to draw favorable inferences from its subsidence, unless there is, at the same time, increased fullness of pulse and warmth of skin. Such vascular reaction affords the best hope of recovery, but requires to be carefully watched, and depletion, if necessary, to be cautiously graduated.

The *diagnosis* can only relate to the distinction between ordinary and Asiatic cholera; for this purpose, the history of the preceding and attendant circumstances will usually suffice, though there are cases of the one so mild, and of the other so severe, as to resemble very closely.

Autopsy.—The external appearance of the body is striking. The solids are sunk, the surface is livid, bronzed or blue, the skin of the hands and feet corrugated, the fingers often rigidly contracted by spasm, which, indeed, in cases of short duration, may continue to affect the various muscles several hours after death. We are warned not to pronounce hastily, in such cases, that death has taken place, as several singular instances of recovery have been recorded under the circumstances. There is, occasionally, congestion of the vessels of the brain, and some extravasation within the cranium. Magendie describes a ghastly transparency of the sclerotica, as occurring even a short time before death, or immediately after it. The lungs and heart are usually healthy, but gorged with dark blood. The mucous coat of the stomach and intestines is, for the most part, pale or blanched in those who die in the early stage of an attack, while the other abdominal viscera show the marks of congestion. Horner describes a species of vesicular eruption as showing itself upon the gastric and intestinal surfaces, and regards this exanthematous affection of the mucous membrane as constant and characteristic. When the case has been protracted, the congestion of the liver and spleen has disappeared, and the villous intestinal tunic exhibits traces of various degrees of inflammatory irritation. The stomach and bowels are *found often* filled with a serous or gelatinous fluid, identical with that discharged by vomiting and purging. The quantity thus excreted, is sufficient to account for the defect of serum and the salts dissolved in it, in the blood of choleric patients, the analysis of which has been made with great nicety by Clanny, O'Shaughnessy, and others.

Treatment.—In mild cases, seen early, and in subjects warned by the slighter precursory symptoms, I would promptly exhibit the tinct. opii in sufficient doses, putting the patient to bed, and covering the abdomen with warm fomentations and poultices, and the extremities with sinapisms. These means failing to relieve, I would perhaps resort to the lancet, watching anxiously the effect of the loss of blood on the pulse and strength. I would cup the epigastrium and belly, and apply leeches to the back of the neck and behind the ears. I would depend upon the influence of calomel, which I would combine with opium, pro-

portioning the dose to the urgency of the case. If the pulse sunk, and exhaustion threatened to supervene, I would administer capsicum and camphor; and if the prostration increased, employ unhesitatingly, though with reluctance, the most energetic of the diffusible stimulants. Ice *ad libitum* should be allowed during all the stages of the attack, if agreeable and asked for.

The true collapse, not a state of congestion or concentration, but a complete capillary paralysis, is an almost hopeless condition, and fairly beyond the resources of our art; but we must not abandon our patient; and in our embarrassment, I would decidedly prefer the stimulant, rather than the opposite class of measures. A mustard emetic with salt, followed by free doses of turpentine, capsicum, laudanum and ether, with the application of heat and irritants to the surface, seem to me the most promising remedies.

In the consecutive fever, topical and sometimes general bloodletting, the application of leeches especially to the temples and occipital region, mild cathartics, with the mercurial treatment carried to the extent of a light ptyalism, are the measures most obviously indicated.

I scarcely need say, that I have little confidence in the exhibition of saline medicines, in large quantities, as recommended by Stevens—or in their introduction into the veins, as practiced by Latta and others—or in the inhalation of oxygen—or the deluging the stomach with either warm or cold water, in the indefinite draughts lauded by Shute and his antagonist on either hand—or in the tobacco enema of Baird—or the frictions with ice, proposed by Jackson.

DIARRHŒA.

Inordinate frequency and fluidity of the alvine evacuations. Very generally, though not always, there is griping pain preceding and accompanying each motion, and relieved by it for a time. Anorexia attends, with nausea sometimes, and vomiting—the tongue is furred and whitish—fever is rarely present, and does not by any means form a part of the ordinary history of the disease. If the case be protracted, there is emaciation and great

debility—the lips, cheeks, gums, &c. become aphthous, and the patient sinks at last, exhausted by the unceasing drain, and the atrophy which of course results.

Diarrhœa has been subdivided into many species, in reference to the alleged sources and the morbid peculiarities presented in the stools, but the pathology is in all the same. The mucous membrane lining the digestive canal, is irritated and excited to morbid and unnatural action; its vessels pour out an increased amount of secretion, variously changed, according to the circumstances, and a symptomatic or consequent urgency of peristaltic movement ensues.

Causes.—Indigestion, whether from excess in quantity of food, or any other circumstance disordering the stomach, is the usual commencement of attacks of diarrhœa. There are indeed many substances, which by some peculiar property bring on transient diarrhœa, as the whole class of laxatives and purgatives, several articles of diet, as for example preparations of Indian corn, many fruits, ripe and unripe, molasses, confections, ices, &c. &c. The disease results also from sudden exposures to atmospheric vicissitudes, and to cold and moisture. It arises from impressions made directly or indirectly upon the liver, occasioning an undue flow of vitiated bile into the duodenum. It occurs from repelled eruptions, and at the subsidence of the exanthemata—from irregular gout and rheumatism, and in some cases of fever, when the evacuations are spoken of as "critical."

Prognosis.—If early and judiciously prescribed for, diarrhœa is not generally difficult of cure; but if neglected or aggravated, as is often the fact, by the employment of inappropriate medicines, it may terminate fatally, though this is rare; or it may run on into a chronic stage, in which it assumes a singular obstinacy, enduring for months, and even years.

Treatment.—It has been too much a general rule, to begin the management of diarrhœa, by the exhibition of an emetic or cathartic, or perhaps both. This is seldom proper. Where foul, crude, irritating ingesta, have been recently taken into the stomach, a mild emetic of ipecac. may be premised; and if the stools have, from the first, contained little or no feculent matter, giving reason to suspect their retention, a gentle cathartic of oleum

ricini, pulv. rhei, or calomel, may do service by the removal of such oppressive accumulations. For the most part, however, the evacuations have been sufficiently free; and it is best to commence at once with the administration of opiates and diaphoretics. The Dover's powder, or the tinct. opii camphorata, will with few exceptions, put an end to ordinary attacks. If soreness of the abdomen exist, or febrile excitement be present, it may be proper to cup or leech the belly. Fomentations and poultices, mingled with mustard or other stimulant, are always useful. Alkaline and astringent medicines are next to be prescribed. Of the former, the carb. potass., cret. ppt. and aqua calcis, are much relied on. Kino is preferred to all the astringents, and has received high eulogies from Pemberton and Bally. The cretaceous julep is a familiar and very extensively applicable combination of the mucilage of gum arabic, with cret. ppt. and kino, and an opiate.

In chronic diarrhœa, the sulphates of alumin, zinc and copper, have met with zealous advocates. The latter is much employed by Elliotson. The acet. plumbi is deserving of confidence. The nitrat. argent. is often useful in protracted cases, and is specially adapted when the red or aphthous tongue shows an inflammatory and ulcerous condition of the digestive mucous membrane. The diet should be nourishing, but plain, with little fluid of any kind, and all stimulants avoided. The trunk of the body should be enveloped in flannel, and a journey or sea voyage undertaken.

DYSENTERY.

Pain and disorder of the bowels, with fever—tormina and tenesmus, with alvine discharges of mucous or muco-purulent or muco-sanguinolent matter; these are the general symptoms which occur in the designation of dysentery.

It presents itself often sporadically, and not unfrequently as an epidemic—is notably modified by season, climate, and other circumstances, and exhibits occasionally a contagious disposition; nay, Cullen and others regard contagion as one of its uniform characteristics.

Dysentery comes on with some gastric uneasiness, for the most part with griping and frequent calls to stool; the evacuations are

scanty and unsatisfactory, and give no relief, being attended with much straining, and consisting at first of a mere bloody mucus, fecal matter being very seldom discharged, and in very small quantities. Febrile excitement runs high, with heat and dryness of skin, and full hard pulse—or in other cases partakes more of the characteristics of typhus, when we have sudden prostration, with feeble circulation and low muttering delirium; the belly becomes more sore to the touch—the tongue is fiery red, at first covered with a thick fur, but clearing off after a time with a smooth epithelium-like surface—there is great restlessness, with much anxiety and oppression and sighing. The alvine discharges are now very frequent and exceedingly offensive, and much and variously changed in appearance and qualities. Small, round, hardened fecal lumps (technically denoted Scybala) are occasionally passed by the patient, and always with notable relief; lumps of sebaceous matter are also sometimes voided. The stomach often becomes, in these latter stages, irritable—debility and emaciation rapidly increase—the abdominal pains having reached an intolerable intensity, sometimes cease suddenly and entirely, and death soon follows.

Autopsy.—Dissections uniformly reveal the results of inflammation—often showing constriction of some part of the intestinal canal. These lesions have been most frequently found in the colon. Ulcers are seen of various sizes, eroding the mucous coat; and gangrene is occasionally met with of greater or less extent.

Diagnosis.—Dysentery has been confounded on the one hand with diarrhœa, and on the other, with mere intestinal inflammation, whence it has been styled by Ballingall and others, a Colonitis. From diarrhœa it is distinguished by the essential presence of fever and of spasmodic constriction. Dysentery is uniformly a pyrectic affection; and we cannot doubt of the morbid constriction of some part of the tube, as in colic, when we reflect on the difficulty with which fecal evacuations are procured, and the relief which always follows at once when they do happen.

That the intestine is inflamed in dysentery is obvious and certain; but the nature of this inflammation is peculiar, and it is uniformly combined with circumstances and conditions which

are characteristic. Thus in enteritis we have no excitement of the peristaltic movements of the bowels, so urgent in dysentery; nor is there present the tenesmus, nor griping, nor the hemorrhagic transudation, nor the tokens of spasmodic constriction met with in the latter.

The *pathology* of dysentery presents several complicated conditions which separate it (in practice readily enough) from all other disease. Pain, fever, and inflammation, ulceration and hemorrhage, increase and morbid alteration of the intestinal secretions, with urgent vehemence of the peristaltic actions, all combine in each individual case.

Causes.—Dysentery may occur *sporadically* at any season of the year, like cholera and diarrhœa, from the irritation of the alimentary tube, by improper, crude and acrid ingesta, or by exposure to cold and moisture, and sudden alternations of temperature.

It may arise as an *endemic*, in localities subject to the influence of malaria, and in the autumn especially. This form, called by some tropical dysentery, is supposed to be closely connected with hepatic derangement and effusion of vitiated bile.

It occurs not unfrequently as an *epidemic*, spreading rapidly and extensively, by means of some unknown atmospheric contamination. It assumes probably a *contagious* character under certain circumstances, as when it invades a jail, hospital, ship or camp, crowded and ill-ventilated places, and where the attendant fever is of typhoid type.

Prognosis.—The *general* prognosis in vernal and winter dysentery, and in sporadic attacks, is favorable—not so much so in epidemic and autumnal dysentery, and decidedly the reverse when the fever is of typhoid character.

In *particular* cases, the danger may be considered as in pretty exact proportion with the urgency and frequency of the calls to stool; and a diminution of this frequency is one of the most pleasing symptoms. The nature, too, of the discharges is of some importance. Hemorrhage is a sign of evil, as showing the erosion of some vessel, or extreme force of vascular determination to some part of the internal surface; purulent fluid, as resulting from high inflammatory excitement, not unlikely to be productive of ulceration; so also fibrinous shreds or pieces of membrane, similar to

that found in the larynx in croup; and ichorous or sanious and highly offensive *matters*, as giving reason to dread the supervention of gangrene. Relaxation of the sphincter ani is almost certainly a fatal prognostic.

Recovery is probably at hand when the fever subsides, the tormina are less severe, the tenesmus less urgent, the alvine evacuations assume a fecal odor and appearance, and the tongue becomes moister and less red.

Treatment.—Blood-letting is very generally indicated—less frequently, I think, in the epidemic and autumnal dysenteries; it is of course unsuited to cases of feeble constitution and typhous combination. Topical depletion, by cupping and leeching the belly, is also generally useful; after which, fomentations and irritating poultices should be applied. *Emetics* have been highly lauded, but I have seen little benefit from them. *Cathartics* are not always required; but if properly selected, will often do good service. In such attacks as occur in winter and spring, (which have been regarded as catarrhal and rheumatic,) and in epidemic dysentery, I do not think them necessary, but would commence the treatment by administering an opiate and diaphoretic, as Dover's powder or tinct. opii camph., in full dose. We may proceed to combine a few grains of calomel, if the cases threaten to protract themselves; and under this simple management they will, in a vast majority of instances, yield promptly.

In the other forms of the disease, those namely, which result from acrid ingesta, and such as depend on the impression of malaria, we must employ the class of mild purgatives. In the first, it is usual to prescribe the oleum ricini alone, or with a small amount of ipecac.; nor can we advise a better formula. After its operation, the belly should be well fomented, and an opiate exhibited.

In tropical, autumnal, malaria or bilious dysentery, the best of our cathartics is the mercurial; and the experience of all practitioners, in hot climates, is in favor of its prompt and unshrinking administration. From one scruple upwards of calomel is the dose, which should be repeated with a frequency proportioned to the violence and danger of the attack. I give unhesitating testimony to the remarkable success of this method of treatment. Ptyalism need not be aimed at, and may usually be avoided, the patient's life being secured without it.

It would be unwise to omit in the mean while the use of the lancet, if the inflammatory symptoms run high—the opiate, which conduces so admirably to the relief of the suffering, or the cups and fomentations so beneficial locally. Epispastics are by some physicians very much trusted to as adjuvant means of revulsion, when the earlier stage of the case is past. They are applied both to the abdomen and the extremities, and sometimes effect striking results.

The employment of enemeta of various formulæ and qualities, may tend much to the comfort and advantage of the sick. Cold water, unmixed, is among the best, as diminishing pain and irritation. Mucilages, with opium, subdue the griping and tenesmus. The acetate of lead is administered with obvious good effect, both in clysters and by the mouth, where hemorrhage, whether venous or arterial, has occurred.

The general management of the patient is of great importance. He should be kept as quiet as possible in a recumbent posture, rising as seldom and with as little exposure as may be. He should be instructed to resist with his utmost resolution the urgent calls to stool which annoy him, and the reiteration of which is susceptible of unlimited increase by indulgence. His chamber must be kept specially clean and pure, and his evacuations always removed on the instant. His diet should consist of the lightest mucilaginous infusions, as toast-water, and thin gruel. Pure water is the best drink, though he may be allowed to acidulate it a little, with either a vegetable or a mineral acid, according to his fancy. Every thing he takes should be offered in small quantities at a time, as the disposition to stool, is apt to be suddenly augmented by a large draught.

Chronic dysentery sometimes comes on slowly as a primary affection, or results from the irritation of protracted diarrhœa; but is far more frequently a consequence or continuance of the acute form. A similar management of the case is necessary, modifying the energy of the treatment, and the doses and repetition of the remedies employed, in reference to the less urgency and violence of the symptoms, the debility so universally present, and the tenacious obstinacy which the attack has acquired from the influence of the habit of morbid action. The nitrate of silver is

well adapted here; it seems to exert a special influence in promoting the healing of intestinal ulcerations. The diet should be carefully regulated—nourishing but unirritating—and the flannel roller should be worn around the trunk of the body. The acet. plumbi, opium, ipecac. in small doses, kino, and the other astringents, mineral and vegetable, may be tried in succession or combination, and with perseverance; but our best hope is in a long journey or sea voyage.

CHOLERA INFANTUM.

Under this title physicians have treated of every varied form of derangement of the digestive system and function which can affect early childhood, including besides true cholera—dyspepsia, diarrhœa, dysentery, scrofulous marasmus, atrophy from whatever cause, verminous disorders, and even infantile remittent and hydrocephalus. I intend by the appellation, cholera infantum, when strictly applied, that modification of bowel complaint which is met with in spring and early summer, and while the process of dentition is going on. I shall, however, follow, in some degree, the general custom, and take the opportunity to notice the modifications which the tender age and the habits of body of our juvenile patients may render necessary, in the treatment of the diseases to which in them the alimentary tube is liable.

Cholera infantum is most frequently met with in cities, in warm climates and low flat situations, during the sudden heats of coming summer.

Its *causes* are dentition—improper food in all its varieties, including the milk of a pregnant mother, and of an unhealthy nurse, thick paps, &c.; general bad management, as want of proper cleanliness of skin, clothing and bed chamber, pure air and sufficient exercise—heat and malaria.

History.—It is not my purpose here to describe again the cholera, diarrhœa, dysentery, enteritis, &c., which may attack children as well as adults, at any season and under any circumstances. I shall merely recount the train of symptoms which occur at the age and under the contingencies above specified, in

early summer and during dentition, as I attribute all the peculiarities which demand remark, whether in the course of the attack, the prognosis, or the treatment, to the predisposition of the season, and to the irritation of the teeth in coming forward.

The invasion of cholera infantum, if it be not preceded by, and the sequela or remnant of some of the more acute forms of intestinal disease, is gradual, though not slow. There is fretfulness and uneasy restlessness, with moaning—the hand being often applied to the mouth or face, or upon the gums, which are perhaps red and swollen; the lips and tongue also exhibit a higher than the natural color. The stools are loose and frequent, and changed from the ordinary appearance; there is thirst, and especially at night, more or less febrile excitement. The stomach becomes disturbed, or perhaps vomiting may be one of the earliest symptoms; and the organ is, at last, so irritable, that nothing can be retained. The stools are attended with pain and straining—are more morbid in character and acrid, so as to inflame the skin about the anus. The abdomen is tender on pressure and becomes tumid, while the limbs emaciate, and the countenance grows haggard and ghastly—the mouth is covered with aphthous ulcers, and great languor and feebleness supervene. In some cases, the sufferings are unremitting, and the child cries incessantly, tossing its arms about and drawing up its feet. In others, the patient lies in a state approaching to coma, with its eyes shut, and so insensible to every thing, that flies have been seen to light upon the cornea, or enter the open mouth, without being noticed. In some instances, death is preceded by convulsions. The duration of the attack is very uncertain. I have seen a child carried off by cholera—vomiting and purging—in less than twelve hours, but the chronic form I have portrayed, may last from ten days to six or eight weeks.

Autopsy.—The appearances after death, vary with the duration and form, and are such as have been described, successively, under former heads.

Prognosis.—Cholera infantum, so called in accordance with the definition given above, although not mortal in very large proportion, is a disease of difficult cure, owing to the permanence of the causes which give rise to it. Transient relief is readily

within our reach, but the symptoms are exceedingly apt to recur. The chances of perfect recovery are greatest, where the smallest number of teeth remain to be "cut"—when the constitution of the parents is good, and the child has been previously healthy. On the other hand, we dread the result in weakly children—those born of scrofulous or otherwise infirm parents—those attacked early in spring, and having a large proportion of teeth yet to cut—such as live in low, damp, and ill-ventilated situations—children, whose mothers have become pregnant, and are forced to wean them, or change their nurses at this unfortunate age and season. The case has an unfavorable aspect when the stomach is obstinately irritable, or the bowels are urged with severe tenesmus, and the stools mucous or bloody or sanious; when the tongue, lips and cheeks are fiery red or ulcerated, the belly tumid, the emaciation specially great, and when coma or convulsions occur.

The *treatment* varies with the several forms of disorder included under the present general head. When the vomiting and purging of ordinary cholera assail an infant, they must, as in an adult, be restrained by proper doses of anodyne, while fomentations and poultices are likewise applied to the abdomen. I often prescribe a combination of the tinct. opii camph., with an alkali, the carb. potass. for example, in small doses, repeated *pro re nata*. When diarrhœa exists, I administer the mist. cretacea, with or without the tinct. kino. The rind of the pomegranate, and the root of the high blackberry, are also very useful astringents. When dysentery is present, I resort to the combination of Dover's powder with calomel and cret. ppt. in doses carefully adapted to the age of the child, aiding the effect with soothing mucilaginous and anodyne enemata, while the belly is well fomented or poulticed.

In the chronic case now under special discussion, the obstinacy or reiterated occurrence of the attack, will render all our resources necessary. In the first place, the general regimen must be carefully attended to. The clothes, person, and the chamber must be kept scrupulously clean, and fresh air and free exercise allowed. If the child has been weaned while teething at the coming on of summer, he must be put back to nurse; if the

mother be pregnant or ill, a sound breast must be procured. If this cannot be done, an exclusive diet of milk and water, with a little sugar, must be enjoined. This is the food most readily assimilated by a child unable to masticate, and whose digestion is impaired. If his residence be in a city, an occasional ride into the country, or a temporary change of abode will be of service. The gums, if swollen, should be scarified freely from time to time. Vomiting, which will happen occasionally throughout the case, must be checked by anodynes and alkalies; the latter will be very frequently called for, the prevailing acidity of the contents of the alimentary canal being shown both in the breath and the stools. The warm bath will be found a valuable auxiliary in procuring comfort and tranquillity; when inconvenient, fomentations and poultices must be employed. Constipation will sometimes render necessary a cathartic—the most gentle of the class should be chosen. Oleum ricini is usually and justly preferred. Calomel is also easy and mild in its operation, and there is little or no danger of ptyalism in infants, even when we persist in the exhibition of small doses of the mercurial; this is called for, when the stools are chalky and show deficiency of the proper feculent and bilious admixture. Diarrhœa should be restrained by the astringents mentioned above; the kino has won an extensive preference, but the acet. plumbi is used, and alum is highly extolled by Miller.

The prophylaxis or preventive management of children is, in reference to their liability to bowel complaints, a matter of great importance, and comprises a very extensive regulation of early physical education. Cleanliness, free ventilation, and exercise in the open air, should be enjoined upon all. No child should be weaned in spring or early summer, who has not passed through the perils of teething. I am disposed to think that no child should be taken from the breast until he has teeth in sufficient number to break up and masticate his food, or, where dentition is long delayed, has learned to do this with his gums. Much is said of the evils of keeping a child too long at nurse—the opposite evil is at least equally dangerous. After weaning, the diet must be plain, but abundant. No great variety should be allowed, and all such things as tempt to excess in quantity should be strictly prohibited.

INTESTINAL WORMS.

VERMES—HELMINTHIA.—As all plants are liable to be preyed on by parasitic plants, so all animals are infested by parasites. Some of these, probably numerous species, are of themselves and in the nature of their usual connection innocuous, and become hurtful, if at all so, merely by their inordinate increase. Others are either products of disease, or occasion disease uniformly by their presence. Examples of each kind may be offered among the subjects of the present discussion. The worms which ordinarily affect the human intestines are the lumbricus, the ascaris, and the tænia. The first of these would seem to be always, or almost always, an inhabitant of the alimentary tube, exciting no disturbance, and attracting no notice whatever, unless when unduly multiplied in number, or when, from some foreign cause of derangement, the body to which it has attached itself has lost something of its proper tone and vigor of health. The tape worm on the other hand is always annoying, and sometimes fatally irritating, while the ascaris may be considered as in a certain degree hurtful wherever it exists, though its power to disturb, greatly depends upon its multitude. The other varieties of intestinal worms described in systematic works, I shall not regard; they are very rarely met with, and deserve to be ranked rather as objects of scientific curiosity than of pathological interest.

The *lumbricus* is round, thickest in the middle, and tapering to both extremities—of white or slightly greenish hue, with a wrinkled or annular surface, and from five to twelve inches long. It enjoys distinction of sex, is of social habit, and chiefly infests children from two to ten years of age, being rarely found in any large number in infants while at the breast, or in adults. They are so universally to be detected in the bowels, that Parr, Rush, and others, considered them as regularly belonging to the healthy animal economy.

The symptoms which are supposed to result from their presence and injurious agency are in general somewhat as follows: the child is languid and loses flesh, the appetite is irregular,

sometimes voracious, but often deficient, the tongue is furred, and the breath fetid, the bowels are usually loose with griping and straining, and the stools morbid and offensive, the abdomen is hard, and tumid and painful, the skin of the face and feet puffed, the little patient picks his nose and sleeps uneasily with starting and sometimes screaming, irregular irritative fever may supervene, there is cough perhaps with dyspnœa, and not unfrequently convulsions *quasi* epileptic. "There is scarcely a disease or symptom of disease," says Rush, "belonging to Cullen's class of Neuroses, which is not produced by worms." I had rather refer to them as among the most potent *exciting causes* of all forms of intestinal and nervous disease, to which the subject may have become *predisposed* in any manner whatever.

When the above train of phenomena, or any notable number of them concur in a given case, it will be proper to manage it by a prompt resort to anthelmintics or vermifuges. Of these, the best are the Spigelia Marilandica, Melia azedarach, camphor, and spts. terebinth., and it is worthy of remark, that they often put an end to the appearance of disease, even when they fail to expel worms as we had expected. Camphor is especially deserving of our confidence; it is distasteful to all tribes of insects, worms, &c. In a dilute aromatic infusion it is also a good tonic, and is readily taken by children. The others are in very extensive domestic use, and very serviceable. After a brief exhibition of any of them, it is usual to administer a cathartic. I see no advantage in the usual selection of the drastics, but prefer the mildly efficient articles, such as the oleum ricini, with or without merc. dulc. I dislike the promiscuous and repeated administration of anthelmintics, merely as such. Where the symptoms of irritation point chiefly to the brain and nervous system, I would depend upon the incidental vermifuge effect of purgative formulæ, with such other remedies as may be indicated. When the digestive tube is much disturbed, I would resort to the narcotics, Spigelia, Melia azedarach, &c. Of course, there are cases in which a combination of these plans may be called for.

The *ascaris*, thread worm, maw worm, inhabits the rectum chiefly, though it is said to be found in the stomach. It is small, filiform, slender, tapering to both ends, of white color, and ex-

ceedingly vivacious. They create an intolerable pricking and itching at the anus, but are occasionally found in the child's bed, having crawled from his body in great numbers, without any notice of their presence being previously given. In the stomach, they excite distress and oppression, the cause of which cannot be known, unless they are expelled by vomiting, or by stool.

Aloes is the best vermifuge here, being noxious and disgustful to the ascaris. It is used both by the mouth and enemata. Or a small candle or bougie, smeared with mercurial ointment, being passed into the rectum, will dislodge them. Castor oil with camphor, is also useful in getting rid of them.

Tænia, or tape worm, is distinguished into three or four subspecies—is in form flattened, separated into numerous joints, each containing an ovary; its color is whitish or light yellow. It is hermaphrodite—attains a great size, some hundred feet having been expelled from a patient. I, myself, have seen ten yards brought away at once. It is difficult of dislodgement—the head, which is toward the upper part of the intestine, being furnished with fangs or hooks, which it fixes into the mucous membrane; it is, probably, also, reproduced—inhabits chiefly the smaller intestines, and is found almost exclusively in adults. The other worms die soon after leaving the body, but the tape worm is exceedingly tenacious of life. Its presence is productive of very great pain and uneasiness in the belly, with diarrhœa and emaciation, but we have no diagnostic until the gourdseed-like joints are detected in the stools. Many remedies are offered to procure its expulsion. I have most confidence in the bold and free use of the spts. terebinth. either with or without oleum ricini. Calomel, filings of tin and of pewter, an amalgam of mercury and tin, the male fern, the Dolichos pruriens, pomegranate rind, the min. solut. Fowleri, camphor and aloes are used, and a great many other articles, but, I fear we are bound to acknowledge, with no flattering success.

HEPATITIS.

The liver is, apparently, the most important of the collatitious viscera, which aid in the digestion and assimilation of our food;

and although the special uses of its secretion, the bile, are not known with precision, yet the importance of the organ must be great, as it is the largest in the body, is one of the most uniform of the animal structure, and its diseases always affect the general health in a remarkable manner. It is subject to inflammation, *acute* and *chronic*, and it has been much disputed, whether the difference announced in these terms may be merely referrible to the time occupied by the morbid action and its results, or consist in some specific distinction of nature or locality.

Acute hepatitis has been attributed by one class of writers, to a diseased state of the ramifications of the hepatic artery, the nutrient vessel of the organ; and the chronic form to a similar condition of the minute branches of the vena portæ, supposed to be engaged in the business of secretion. Others regard the first as an inflammation of the investing serous membrane of the viscus; and the second as an inflammation of the parenchyma of the liver.

Acute hepatitis commences usually with febrile rigors, followed by flushing of the face, with hard, abrupt, quick pulse. There is a sharp pungent pain in the right side under the margin of the ribs, shooting to the back and to the top of the shoulder. The pain is permanent, but is increased by a deep inspiration; it is sometimes, though not often, attended with nausea. The respiration is hurried and uneasy, and a short dry cough comes on and harasses the patient; there is much thirst; the skin is hot and dry; the tongue is thickly furred with a yellow crust; the bowels are usually costive and difficult to be moved.

Diagnosis.—May be confounded with pleurisy, which also presents severe pain in the side, with dyspnœa, cough and fever. In pleurisy, however, the cough is one of the earliest symptoms, while it does not invade until some time after the access of hepatitis; nor is there in the former the pain at the top of the shoulder, so usually attendant on inflammation of the liver; the seat of pain in the latter, is also lower down the side, and may be traced by the hand under the cartilages of the ribs. Exploration of the thorax by auscultation and percussion, if properly attended to, will preclude all chance of error.

Causes.—The predisposition seems to be built up by high and long continued heat, the influence of which upon the liver, is

attempted to be accounted for by various speculations. The ordinary exciting cause is almost always a notable alternation of temperature, exposure to damp or comparative coolness. Excesses of all kinds, it is said, may bring on an attack.

Prognosis generally favorable. The principal danger lies in the tendency to recurrence, succeeding attacks becoming less and less manageable. The acute is, also, very liable to run into or produce the chronic form of hepatic disease. It may, however, terminate the life of the patient, like other inflammatory affections, by exhausting the vital powers; or it may run promptly into suppuration. This last result is known by the repeated chills or rigors which supervene; there are sweats about the face, with a pulse small and very frequent; there is, also, a sense of weight or heaviness in the right hypochondrium. The event is usually unfavorable; but the abscess may empty itself—1st, by the lungs, adhesions connecting the inflamed viscus with the diaphragm, and the portion of the lung above it, and absorption or ulceration making an outlet for the pus which is coughed up; or 2d, by similar adhesions to the stomach or intestines, when it may be passed by stool or vomiting; or 3d, it may adhere to the parietes of the abdomen, and point externally, as I have seen in two attacks in the same individual, a female. In all these cases, though life may be preserved, the health of the patient is irretrievably impaired; digestion and fecification are always afterwards imperfect.

Treatment is very simple, and consists almost exclusively of active depletion. Venesection should be carried to the fullest extent, and leeches or cups applied to the right hypochondriac and epigastric regions. The saline purgatives are to be freely administered; and after their abundant operation, the skin is to be kept moist with perspiration, and the pulse low by the use of antimonials. Should the hepatic pain continue after this depletion, and fomentations fail to give relief, a large blister should be put over the part.

When the patient is seen early in the attack, these measures will rarely, if ever, fail to remove it. But if his strength should sink, or suppuration intervene, we must change our plan of management, and support him by the cautious employment of tonics

and stimulants, and a generous diet, until the matter be discharged in one of the modes above alluded to.

Chronic hepatitis is a form of disease of not unfrequent occurrence among us. It is sometimes, as has been said, a sequela of the acute variety, but more commonly developes itself independently, gradually and obscurely. With much disorder of the general health, such as has been described under the head of dyspepsia, there is a sense of weight and fullness in the right side, with some uneasiness or pain at the top of the right shoulder, or as the left lobe of the liver may be affected, these may be felt on the left instead of the right side, though much more rarely. The complexion is sallow, and the tongue encrusted with a whitish or brown fur, while the sides and edges are of a dark red, or the organ may have a contrasted flabby and pale appearance, looking soft and sodden and somewhat swollen. The strength fails, and there is extreme dejection of spirits, with ennui and morbid vigilance. The bowels are irregular, costive, or loose, with ill-conditioned evacuations. The pulse is quick and chorded, though small. A febrile exacerbation, more or less marked, takes place every evening, and a dry hacking cough often attends.

Cause.—Heat and malaria predispose to this affection of the liver, which, indeed, almost exclusively belongs to warm climates; it occurs in persons who have been subjected to no other special or notable mode of excitement. It follows violent or obstinate attacks of intermittent and remittent fever. It is, however, most commonly met with in the intemperate.

Prognosis is unfavorable. Perfect recovery of health, after a liver complaint of any duration, is not frequent, the patient remaining dyspeptic, and liable to a recurrence of his hepatic disorder. Among its ultimate consequences too, are icterus and dropsy. It is more apt than the acute form to run into suppuration; besides which, it has a peculiar termination in a sort of permanent enlargement with induration, technichally spoken of as Schirrhus. This is readily discoverable on examination by the hand, the fingers being bent and turned upwards, while the patient is leaning slightly forward to relax the abdominal parietes.

Treatment.—If the strength admit, venesection should be employed, but with some caution. Topical blood-letting is almost

always advisable, and may be repeated *pro re nata*. The bowels should be moved from time to time—if constipated, by mild but efficient cathartics. Beyond this, we must hope for permanent advantage in an alterative course. The mercurials are almost universally confided in. The blue pill or calomel in small doses, should be administered until a moderate ptyalism is induced, and this should be kept up for a time, during which the morbid symptoms will generally be found to yield. Other alteratives have also been proposed, as taraxacum, and the nitrous and muriatic acids; the combination of the two, the nitro-muriatic, has been much used in India, both internally and as a bath. One of the best of our alteratives is iodine, in very dilute solution.

When the liver is tumid and heavy without pain, epispastics may be repeatedly applied over it, and the galvanic and electric currents passed through the hepatic region.

In an obstinate case, we should advise a visit to some of our watering places. Those fountains which like Ballston and Saratoga, unite a moderate purgative effect, with the tonic pungency of the carbonic acid gas, and the mildly alterative influences of iodine in minute proportions, are most useful in hepatic diseases. There is much good done by the journey and voyage thither and homeward. In the mean while the strictest temperance must be enjoined, and the patient cautioned against indulgence in improper habits of every kind. He must live on the plainest food, retire early to rest, abstract his mind as much as possible from care, and guard against all passion and emotion. His clothing must be warm and judiciously adapted to protect him from the vicissitudes of weather.

ICTERUS.

Jaundice.—This term is used to comprehend the series of symptoms which result from obstruction of the passage of bile from the liver into the alimentary canal.

The importance of this fluid in the process of alimentation, the perfect digestion and assimilation of chyle, and the fecification and expulsion of the rejected portions of food taken, is well known. The want or deficiency of it, is productive of serious

evils. But it is supposed that bile is not only a useful *secretion*, but also an indispensable *excretion*, containing certain essential constituents which are required to be regularly and unceasingly eliminated from the system. Its non-secretion, or at any rate the re-absorption of its ingredients into the vessels, and their admixture with the circulating mass, is hence assumed to be attended with injurious and well ascertained consequences.

These evil effects are still farther liable to modification, and additional suffering may result from the cause and nature of the obstructions present; all which demand in turn a careful consideration.

1. When the function of the liver is interrupted, and bile no longer enters the duodenum, the patient labors under anorexia, dyspepsia, costiveness; the stools, when any are passed, being unnaturally pale or of clay color. The complexion and eyes are yellow. The tongue is covered with a thick brownish fur, and a bitter taste pervades the mouth. There is extreme mental dejection, with physical inactivity and feebleness. The suffusion of the skin and eyes deepens to an orange hue, and every solid and fluid of the body is of the like tint, "except," says Heberden, "the milk." Poets and philosophers have affirmed the fact, and made it a subject of frequent allusion, that jaundiced persons see all objects yellow. This is a rare circumstance, but Good affirms it to have been true in his own case; here the very humors of the eye must have been tinged by the resorbed bile.

There may or may not be certain local symptoms denoting hepatic disorder, such as a sense of weight and fullness in the right hypochondrium, pain at the top of the shoulder, &c. These, though dwelt on by authors, are not essential, and indeed are totally wanting in the great majority of such cases as I have met with.

In the simple form of icterus just described, I suppose the obstruction to the flow of bile into the intestinal tube, to result from a torpor or loss of tone and defect of action in the biliary ducts, which fail to take up and transmit thither, as is their office, the fluid secreted by the sanguineous capillaries—the ultimate ramifications of the vena portæ or of the hepatic artery. It is therefore of necessity re-absorbed by the radicles of the hepatic veins or lymphatics, and passes into the circulatory current.

The *causes* of this condition of the liver are very various. It may result from chronic hepatitis, or follow the congestions which form so prominent a part of the history of malaria fevers. I have seen marked cases occur during the convalescence from bilious remittent and intermittent; nay, it may prevail, as if epidemically, in certain unhealthy seasons, showing the influence of febrile miasm upon the liver and its functions. In the autumn of 1824, great numbers of persons, including a majority of the convalescents from bilious and yellow fevers of that year, were attacked with jaundice.

Prognosis, generally favorable. This mild grade of icterus is seldom dangerous or fatal, and for the most part easily cured.

I am inclined to the opinion, however, that some at least of the more serious of these attacks are owing to a closure, more or less complete, of the valvular opening of the ductus communis choledochus, by swelling and thickening of the mucous lining membrane of the intestinal tube, in obscure chronic or sub-acute Duodenitis. Of course, such cases will be more obstinate and tenacious, not admitting of relief until the original duodenite has been removed by proper measures.

Treatment.—In the early stages of the simplest cases, an active emetic will generally procure entire relief. If any thing farther be necessary, a mercurial or aloetic cathartic, with energetic exercise and cheerful occupation, should be advised. Horse-back riding is to be selected. Frictions with the hand, or a flesh-brush, on the right side and over the abdomen, are serviceable. A current of galvanic or electrical fluid may be directed along and through the region of the liver.

2. The most important modification of icterus, and one not unfrequently met with, is that characterized by the presence of biliary calculi.

Here the attack is sudden and full of extreme suffering. The patient complains of intense pain, coming on without warning, often after a full meal, at or near the pit of the stomach, extending across toward the right side, with nausea soon increased to violent vomiting, and accompanied by a sense of abdominal distention. The pulse is little affected. There is extreme anxiety and despondency. The epigastric pain is usually per-

manent, and intolerably severe, and pressure at that region cannot be borne. It may in some instances subside or remit after a time, and return with great violence, and this may be repeated until the sensibility of the duct is worn out; or inflammation may be excited and transmitted along the duodenum and intestines generally. The bowels are costive and flatulent. The skin and eyes soon become deeply suffused.

The symptoms thus described are attributed to the passage through the duct leading from the gall bladder to the duodenum, of biliary calculi, or concretions of various constitution, size and form. These bodies are often found in great numbers in the gall bladder, and even in the bodies of individuals who have never shown, during their lives, any symptoms of jaundice. We find them occasionally in the stools of our patients, which ought with this view to be carefully examined. They are divided into—1st. Cholesterine calculi, composed almost entirely of cholesterine, an animal substance somewhat resembling adipocire or spermaceti; these are white, lamellated, shining and crystallized. 2d. The mellitic, the most common; brownish, composed of cholesterine with picromel and other animal matters, contained in bile deposited in concentric layers. 3d. Calculi of inspissated bile, of dark yellow color and somewhat rare. Besides these I have seen calculi of a beautiful green, so dark as to seem almost jetty black, with highly polished surfaces—others still have been described. They are seldom round, but polygonal and angular. It is not known how they are propelled from the gall bladder, where they are comparatively harmless, into the duct which they so vehemently irritate. We must not omit to remark, that the very same symptoms occur in many instances in which the most careful examination of the stools has failed to detect the passage of a calculus, and when fatal no such concretions have been found either in the duct or the gall bladder. They are here attributed then, to mere spasm or constriction of the duct, occasioned probably by the irritation of vitiated and acrimonious bile.

Prognosis, doubtful. We cannot explain the formation of these concretions; but they are seldom deposited singly, and they seem to be connected with a condition of the liver and certain alterations of its secretion, which, as we do not clearly

comprehend, we cannot readily remove. Such attacks are apt to recur in the same person. I saw the repetition in one patient, productive of enteritis, and in this way indirectly fatal.

Treatment.—It is not merely the mechanical distention of the duct, to which we must ascribe the sufferings endured by the patient, but more probably a spasmodic constriction of its irritated coats, which close upon and thus detain the gall-stone. To relax this constriction, we use the *lancet* promptly and freely—administer *opium* in the largest doses, and place the patient in the *warm bath.* The bowels are to be well moved, by efficient though mild cathartics and enemata, and large fomentations or poultices kept to the abdomen. To meet the first threatenings of inflammation, we must apply cups or leeches to the right side and epigastrium, and continue the effect of purgatives moderately. This last measure must indeed be persisted in for a few days in a majority of cases, to remove the gastric and general uneasiness left by the attack. To prevent a recurrence of the symptoms, it is necessary to restore the liver to its proper condition and action, in order that a healthy bile may be secreted and poured into the intestines. For this purpose no better means are in our hands, than those recommended in the remedial management of chronic hepatitis.

In ancient times, icterus was divided into species in reference to the *color* of the bile discharged, and of the body of the patient. Thus, even Good, recognizes *yellow*, *black*, and *green* jaundice; and Marcard and Baillie sanction this view. I have met with a case of this last named variety, well marked. The adnata of the eye was green—the alvine evacuations, the saliva, and the bronchial mucus, were also deeply green. My patient was a black woman, convalescent from small pox. The event was fatal, as it is asserted to be, uniformly, by the writers above alluded to.

SPLENITIS.

Enlargements of the spleen are common in all hot and malarious regions, and more especially frequent as connected with intermittent fevers. They are generally regarded as congestive—the result of repeated succussions of the cold stage. But some of the

French pathologists deny their passive character, and hold that they are rather the causes than effects of intermittents. The ague-cake, or ordinary indolent enlargement of the spleen, occasionally puts on an inflammatory condition, rarely acute; I have seen one case terminate promptly in suppuration, the spleen becoming vehemently inflamed during an attack of scarlatina, following a protracted intermittent. I have met with two instances of very great enlargement and chronic inflammation of the spleen, independent of any malaria fever. The dilatable tissue of this organ is liable to rapid and monstrous intumescence, and extremely varied degeneration. It has been seen from ten to thirty-three pounds in weight. It is indurated, tuberculated, softened, dissolved, merely hypertrophied, schirrhous, full of abscesses. Some of the victims of the famous "Walcheren fever" had the spleen—a mere pulpy bag of three to five pounds weight—filled with a liquid like tar; and a similar dissolution occurs in the malignant fevers of Italy.

Splenitis, in all its forms, is tenacious and difficult of cure. Topical depletion at first, and afterwards persevering counter-irritation by blisters, &c., purgatives of mild character frequently repeated, mercurials cautiously used—such is the prescribed course of treatment. Iodine is sometimes serviceable. I prefer the deutiodide of mercury and potassium. The ungt. iodinii may be rubbed on the side. The Hindoos, we are told, administer vinegar and steel. I have found advantage in the exhibition of the tinct. acet. æth. ferri.

PAROTITIS.

Cynanche parotidœa—Mumps.—By this appellation, we denote a peculiar inflammation of the parotid, one of the salivary glands. It is attended with fever, headache, thirst, furred tongue, restlessness, and depression of spirits. The parotid is swelled and painful, impeding speech, deglutition, and mastication. One side only is affected in a majority of cases—now and then both sides. It rarely attacks the same subject more than once, and shows a peculiar tendency to metastasis, or translation of inflammation, from the part first affected to remote parts. In

females, the mamma, and the testis in males, are apt to be severely attacked; in both sexes the brain, also, suffers occasionally. This is denied by some writers; but I have myself known three instances of violent phrenitis occur on the subsidence of the original swelling.

Cause.—It is contagious, and sometimes prevails epidemically.

Prognosis favorable. The inflammation usually terminates in perfect resolution, suppuration of any of the glands affected being extremely uncommon. In a few there has remained an indurated enlargement of the part; and rather more frequently, a certain degree of softening of the testis, and loss of bulk has been observed. The greatest danger is to be dreaded where phrenitis has supervened.

Treatment.—In children, the swelling should be rubbed gently with a mild stimulating embrocation, and kept lightly covered. In young and robust adults, *venesection* and topical blood-letting by *leeches* may be required. This is absolutely necessary where there is metastasis to the more delicate and important organs above indicated. Here, also, the free use of the active *cathartics* is demanded; and when this has been carried to the full extent, the undue force of the circulation must be still farther reduced by nauseant diaphoretics, as ipecacuanha and antimonials.

The glandular indurations, when they remain, should be treated, while tender and irritable, by leeching and soft tepid poultices; when they have become indolent, by iodine lotions and embrocations. Iodine should also be exhibited internally, in diffused aqueous solution.

When metastasis has occurred to the brain, as shown by wild delirium, &c., the case must be managed by the energetic application of the treatment recommended under the head of Phrenitis.

SORE-THROAT.

Pharyngitis—Cynanche angina.—This malady, which after all the attempts to give it a name, is best designated by its ordinary appellation, is one of our most frequent diseases. It is essentially pyrectic, and is properly divided—in reference to the type of fever attendant upon it, and the state of the general system in which it occurs—into *inflammatory* and *malignant.*

Inflammatory sore-throat is farther divided into Superficial, Ulcerative, and Phlegmonous; the first affecting the lining membrane of the posterior fauces and isthmus, the uvula, tonsils, pharynx, and upper part of the esophagus, without lesion of the surface; the second affecting the same tissue, with ulcers more or less deep and extensive; while the third, as the phrase imports, affects not the surface merely of the lining membrane, but the tissues beneath, exhibiting abscesses in the tonsils, and on the back of the pharynx.

1. Superficial inflammation of the throat, is attended with redness of the diseased part, its vessels being enlarged and distended, as in Conjunctivitis. There is a sense of dryness, with pain in swallowing—the uvula is relaxed, and sometimes edematous, occasioning a tickling and disposition to cough. When the inflammation is great, there is sometimes Otitis, with severe pains in one or both ears, attributed to its extension along the lining membrane of the Eustachian tube.

It occasionally happens, whether from any peculiarity in the nature of the inflammation present, or merely from its intensity, that a layer of whitish or yellow lymph is thrown out upon some part of the surface, to which it adheres, but perhaps not very closely, and is usually taken for an ulcer. It resembles the membrane formed in croup, in diarrhœa tubularis, &c. It seems to be connected with an obstinate and tenacious form of morbid action, which may run into a chronic state. Again, there is often a thick, condensed, and highly offensive mucus, collected in small hard lumps in the foveæ or crypts, which indent the surface of the tonsil. They are apt to be mistaken for ulcers. I sometimes press them out with a probe, to the great relief of the patient. If they remain in the cavities in which they are formed, they occasion swelling and pain, and perhaps are loosened by a slight suppuration and hawked out.

2. *Ulcerous sore-throat*, Cynanche ulcerosa, presents also various modifications, the ulcers assuming very different aspects in different cases. Some of these varieties, it is well known, are peculiar and characteristic, in accordance with the specific state of constitution of the patient, as in scrofulous and venereal maladies. But of these I do not propose to treat in detail. That

which is the subject of present discussion, and is connected with ordinary inflammation, under common circumstances, is at first irritable and very sharply painful; its surface is gray or whitish, with red points—the edges being swollen, it seems excavated; it is disposed to extend itself, in all directions, with a rapidity proportioned to the intensity of the inflammation connected with it. After a time, if the ulcers do not heal, they become indolent, stationary, and chronic; while the sympathetic constitutional irritation subsides wholly or in part. They occasionally extend slowly down the esophagus, healing at some points and spreading at others—the cicatrices where they heal, contracting and rendering deglutition exceedingly difficult and painful.

3. *Phlegmonous sore-throat*—Cynanche tonsillaris—Quinsy.—On looking into the throat, if we find one or both of the tonsils projecting forward, with a fiery red and smooth surface, we have reason to fear the formation of abscess within their substance. This is to be dreaded, as occasioning great and protracted suffering, by the impediment thus offered to deglutition and respiration—so great, indeed, as sometimes to threaten suffocation. Even when we succeed in procuring resolution, there is often left an enlargement and induration of the tonsils, which impair both the speech and hearing. There is, now and then, though rarely, abscess formed at the back of the pharynx; and we have on record a few terrible instances of abscesses even in the esophagus.

Causes.—Sore-throat, in its several varieties, is excited by exposures to vicissitudes of weather and alternations of temperature—to currents of cool and damp air, showers, &c. In some individuals and families, there is special predisposition to it.

Prognosis, generally favorable. In the adult of good constitution, there is little danger, though fatal instances are now and then met with. Chronic ulcer of the throat, may wear out the powers of life by the constant irritation, and by its extension along the esophagus.

In the child—the infant—sore-throat is a more serious disease. Even the superficial inflammation is not without some risk, being, at this age, readily convertible into the ulcerous; and if the ulceration extend into the larynx, the case becomes a very serious

and alarming one. Diphtherite, the membranous sore-throat described in a former paragraph, is perhaps even more dangerous. I scarcely know a more formidable disease than this modification of laryngitis or croup, combined with sore-throat. I do not recollect to have met with the phlegmonous form—quinsy—in a very young child.

Treatment.—In a robust adult, it may be necessary to bleed freely from the arm. Local blood-letting by leeches, is almost always useful. Crampton and others propose to carry them to the inflamed spot. Emetics are often given in the first stage, and with advantage, if the stomach is oppressed, the tongue foul, and the breath fetid, without vomiting. *Cathartics*, especially the saline, are almost universally required. They may be combined with diaphoretics, as, at first, ipecacuanha and antimony, and afterwards with the infusion of serpentaria or seneka. When farther depletion is unnecessary, we may reduce the force of the circulation by moderate doses of nit. potass., combined during the day with an antimonial, and at night with Dover's powder. Various local applications are recommended. I disapprove of gargles in the early stage, as painful and irritating. The steam of water at a moderate heat may be inhaled, to relax and soothe the parts, and procure a flow of saliva and mucus. After a time, the sedative and mildly astringent solutions may be of some advantage, more especially where there is ulceration. Nit. potass., alum, sulph. zinc, acet. plumbi, and the mineral acids, are much used. Infus. cinchonæ and myrrh are among the best. This may require special attention in the case of children, the foul secretions from whose ulcerated fauces, it may be necessary to cleanse with a syringe, or a bit of lint attached to a probe.

The employment of the stimulating gargles, so much in vogue, requires a nice judgment and some experience. It cannot be denied, that there are cases in which, even from the first, the infusion of Cayenne is beneficial, but it is difficult to point them out; and it is a good general rule to abstain from the use of these washes, until the ulcer has become obviously indolent, and the case assumes a clearly chronic character. In such instances, good is sometimes done by washing with the solution of the sulph. cupri, and by touching the ulcerated surface with the ni-

trate of silver. These cases farther demand the administration of alteratives and tonics. A mild mercurial course, as of blue pill or merc. corros. sub., may be alternated or combined with the use of the bark and the mineral tonics, of which the best is the tinct. mur. ferri.

The uvula is sometimes permanently elongated or relaxed, so as to fall upon the back of the tongue, and keep up an harassing cough, which, in some cases, has been the precursor of phthisis. To prevent this, it should be amputated. When the tonsil is so much enlarged as to impede the respiration, we must not hesitate to pass a lancet freely into and across it. If an abscess has formed, we evacuate the matter at once; if not, we give relief by diminishing the bulk of the tonsil, and reduce its inflammation by emptying its vessels. If the tumefaction be so great that the patient is in danger of being suffocated, an opening should be made in the trachea, until the tumor subsides or suppurates. The tonsils remaining indurated and enlarged, they should be freely scarified in all directions, or completely extirpated.

Malignant sore-throat, Cynanche maligna, may be described as a combination of inflammation of the throat with the lowest grade of typhous fever. Sporadic cases are occasionally met with, but it is apt to appear as an epidemic. Its proportional mortality is frightful. Its subjects are generally young persons and children, from infancy to puberty.

Symptoms.—The attack is ushered in with nausea, and sometimes vomiting; there is oppression, restlessness, anxiety—the voice is hoarse or husky, the skin dry and constricted—there is thirst; the pulse is small, compressible, very frequent—there is great languor and prostration. It is not in every case that there is any pain or difficulty in swallowing, but in examining the throat we find a dusky redness overspreading the whole surface of the pharynx, fauces, tonsil, and uvula. One or more ash-colored ulcers may appear, which spread rapidly, with little or no pain; or, as is much more common, there is an exudation of plastic lymph covering the inflamed surface, to which it adheres pretty firmly. Pieces of this membrane are frequently thrown off, dark colored and offensive, with a foul discharge from the surface. An efflorescence often shows itself on the skin, but by

no means uniformly or even in the majority of cases, as affirmed by European writers, who often confound Scarlatina anginosa and maligna, with our present subject. As the disease progresses the inflamed parts may assume a gangrenous disposition, becoming livid or even black, with great fetor. Diarrhœa comes on, and the patient soon sinks exhausted.

The *cause* of this malignant pestilence is unknown. It is usually epidemic in its prevalence. It is alleged, also, to be contagious.

The *prognosis* is highly unfavorable. The younger the subject, in general, the greater the danger. In early life there is special liability to the extension of the ulcerous action and effusion of lymph into the larynx, a combination almost always fatal.

In older subjects we judge of the degree of risk as in typhous fever, with less reference to the local affection.

Treatment.—The general management of the patient is similar to that recommended under the head of typhous fever. It is the general practice to premise an emetic. Ipecac. is perhaps the best, but some prefer the antimonial, as more active, and others regard the sulph. cupri as exerting a special efficacy. I see no great objection to either. Our permanent reliance is upon the class of stimulating diaphoretics, which may be employed in turn —the infusion of serpentaria or seneka, the combination of carb. potass. with the tinct. opii camphorata, the acet. and carb. of ammonia, the nit. ether and the infus. cinchonæ; while a generous and stimulating diet is allowed, with wine in proper amount if necessary, the bowels in the mean time being gently acted upon by some mild cathartic; I prefer to all others the combination of merc. dulc. with pulv. rhei in small doses, and at proper intervals.

Of local applications, I regard the blister and the leech, to be alike of equivocal effect, and prefer the mustard poultice to either. The throat and mouth must be kept scrupulously clean. The gargles should be somewhat stimulating. The infus. cinchon. with myrrh or camphor, with the mineral acids, is much to be confided in. The infusion of Cayenne pepper is greatly in vogue, and often does good service. Besides this very useful local application as a gargle, it is perhaps our best internal stimulant, and

should be administered freely. The infusion should be preferred, as strong as the patient can take without suffering, and containing a small proportion of common salt. When the pungency of this drink cannot be borne, it should be prescribed in substance, made up into pills or covered in capsules of jelly.

DISEASES OF THE RESPIRATORY SYSTEM—THE LARYNX, TRACHEA, BRONCHI, LUNGS, &C.

EXAMINATION OR EXPLORATION OF THE THORAX.

The knowledge of the phenomena from which we infer the condition of the thoracic viscera, is highly important to the practitioner. These physical signs are various in their character, and are to be ascertained by the modes of investigation of which I proceed to speak.

I. Inspection of the outline and the surface of the chest. One side may be flattened—may be enlarged—the intercostal spaces may be protruded—it may remain still and passive, unaffected by the motions of respiration. The subject may be more or less malformed—chicken-breasted, &c.

II. Investigation of the capacity of the thorax. This may be ascertained in several ways. A. By mensuration. One side may be contracted, or unequal to the other in circumference. B. By expiration into a gas-holder or bell-glass turned down over water. This is a good comparative test of the capacity of the lungs at different periods during a chronic pulmonary disease. C. By counting seconds during inspiration or retention of breath.

III. Hyppocratic succussion, or brisk agitation of the trunk by the shoulders, for the purpose of detecting fluctuation in the chest.

IV. Percussion—performed by striking the chest with the finger, or the points of three or four together, smartly. A notable reverberation or hollow sound is returned, on striking a thorax which is healthy and full of air. If the reverberation does not

occur, or if the resonance is impaired in part of the chest, we infer the presence of some impediment to the entrance of air into the portion of lung immediately beneath, either by effusion of fluid, or by the solidification of the lung itself. Percussion is sometimes performed mediately, a "pleximeter" being interposed between the finger and the chest. A flat piece of ivory is used for the purpose, a bit of leather, of caoutchouc, or a finger of the hand. The latter I prefer, and usually employ.

V. The hand laid upon the several portions of the thorax, gives very distinctly the perception of vibrations occasioned in breathing, speaking, coughing, &c., and any impairment or increase of the natural and healthy degree of vibration is readily recognized. Thus, also, we examine the impulse of the heart, and determine upon its enlargement or hypertrophy, and its situation or displacement.

VI. Auscultation. This is immediate, as when we lay the ear to the several regions of the thorax, and listen to the sounds within. It is mediate when we employ the stethoscope. This instrument shown and described in its several varieties of form and composition. I prefer a tube made of wood not dense or heavy, and in one piece. I dislike its division into more than one piece, to be screwed or jointed together. If the bore is sufficiently large, I do not think it of great consequence whether it be of paper, ivory or caoutchouc, but prefer wood.

Respiratory sounds described. 1. Healthy sound or respiratory murmur. A. Vesicular. B. Bronchial. C. Tracheal. D. Puerile respiration.—2. Morbid sounds. A. Crepitous râle. B. Mucous râle. C. Metallic tinkling. D. Gurgling or bubbling. E. Cooing or purring. F. Sibilant or whistling sound.

Vocal sounds described. 1. Healthy sound. A. Bronchophony. B. Diffused thrill or vibratory murmur.—2. Diseased sounds. A. Ægophony. B. Pectoriloquy.

Sounds occasioned by the motion of the *heart* described. 1. Healthy. A. Auricular. B. Ventricular.—2. Morbid. A. Bellows sound, (bruit de soufflet.) B. Saw sound, (bruit de scie.) C. Rasp sound, (bruit de rape.) A solid stethoscope is said to convey to the ear, most distinctly, these sounds produced by the action of the heart.

VII. Insertion of flat trocar—a means of exploration proposed by Marshall Hall, to be used in doubtful cases to ascertain the presence of air, serum, or pus in the sac of the pleura. Not to be lightly employed, if ever—and suited only to cases in which paracentesis is contemplated and proper to be resorted to.

CROUP.

Laryngitis—Cynanche trachealis—Trachitis.—Croup is one of the most common maladies of children, in whom it is rarely met with before they have been weaned. Occurs seldom in mature life, though a few individuals remain subject to it. It consists in a well known and peculiar dyspnœa, attended with cough and febrile excitement. The voice is exceedingly husky, and the cough is characteristically harsh, stridulous and ringing. The access is usually towards evening, when the child presents the ordinary appearances of catarrh or common cold, with sneezing, &c. His breathing becomes rapidly more and more difficult, and fever comes on, with flushing of the face and suffused and watery eyes. He sits up in bed, and his struggles for breath are frightful. If not soon relieved, his face is swollen and turgid, and his countenance livid or very pale, while his eyes protrude and his skin is bedewed with sweat. Expectoration of a thick tenacious mucus diminishes his sufferings, and he sinks exhausted to sleep. His respiration is still hurried and croaking, and a mucous rattle is soon heard over the whole thorax. Portions of a flaky membrane are sometimes coughed up, with great alleviation of his dyspnœa. His paroxysms recur, if art has not arrested his disease, and he sinks, worn out with his violent exertions to continue the process of respiration.

Cause.—Exposure to the vicissitudes of weather, to changes of temperature, to cold and moisture, to particular winds, as with us the east and northeast, give rise to attacks of croup. In some children the predisposition is so strong that any exposure to night air will bring it on. It sometimes arises from the extension of inflammation or ulceration of the throat into the larynx. I have seen it, I think, produced by gastric disorder and irritation.

Pathology.—Croup consists in an inflammation of the lining membrane of the larynx and glottis, which by its swelling closes the rima—or by the effusion of thick tenacious mucus endangers suffocation, unless the patient is able to expectorate—or the deposition of flakes of fibrine, plastic lymph, (the "false membrane" so often spoken of, and incorrectly considered by some writers as uniformly present,) which clogs up the passage of air into the lungs. Some authors contend for the existence of a spasmodic croup, in which there is a spasmodic constriction and closure of the glottis, but this is not established.

Autopsy.—The appearances vary with the duration of the case. If death occurs early, we find the lining membrane of the larynx thickened and highly colored; if there be greater protraction of the attack, this state of the membrane is continued down through the trachea and its ramifications, forming true bronchitis, and the air tubes are clogged up with a thick mucus. In such instances, we find more or less inflammation of the pulmonary tissue, the lungs being to a considerable extent hepatized or solidified. The membrane above mentioned is sometimes found in small flakes adhering to parts of the surface, or in the shape of a complete tube, or in solid mass. There is sometimes ulceration of the surface, in cases connected with sore-throat. I have a preparation of a larynx which exhibits, at different points of its surface, the adhesion of flakes of lymph and an extended ulcer.

The *prognosis* is generally favorable. Croup, though alarming in its onset, is, if seen early, very much under medical control. The danger is in proportion to the dyspnœa, except where there is ulceration of the larynx. Such cases are insidious, but prove almost uniformly fatal. Free expectoration is a good symptom—a hard, dry, ringing cough, the reverse. The extension of the morbid irritation to the bronchi and lungs, of course, adds to the danger.

Treatment.—We may sometimes succeed in arresting the threatened attack of croup in subjects predisposed, at its commencement, or during what may be called the catarrhal stage, by immersing them in the warm bath, and administering a full dose of the tinct. opii camph., which proves stimulant, diaphoretic and anodyne. As soon as the peculiar cough is heard, an active

emetic should be given, which will often put an end to all the uneasiness suffered. I prefer the combination of ipecac. with tart. antimon., and if there were much dyspnœa, would administer it while the child is seated in the warm bath. If febrile excitement have had time to develope itself, with full pulse, flushed cheek, and sparkling eye, the lancet should be employed, and perhaps leeches may be placed about the throat. The *emetic* should be repeated, and the bowels moved by uniting with it some *cathartic*. *Calomel* may be chosen, but I would not confide in it alone, or to the exclusion of other remedies. *Squill* and *seneka* are much and justly extolled, as combining obvious expectorant and diaphoretic effects with their emetic property; they may, in protracted cases, be exhibited repeatedly at intervals with advantage. As soon as the leeches are removed from the throat, large poultices should be applied, at first made irritating by the addition of a little mustard. At a later stage, they should be made to cover the whole thorax. No disease is more generally managed by domestic means with success. A plaster of *Scotch snuff* is mentioned by Godman, as highly efficient in arresting it in the former stage. The alkalies are much employed. Common ley internally, and as a bath, is serviceable. Some parents give the volatile liniment, spt. corn. cervi, with olive or lamp oil and molasses. Others administer indigo, which operates harshly, both by vomiting and purging.

With regard to the operation of tracheotomy, so much discussed, I would offer this rule. If a child were in imminent danger of suffocation, in the earlier period of croup, from sudden closure of the glottis, either by swelling of the lining membrane, or by the deposition of membranous flakes, while yet the air-tubes beneath were permeable, as inferred from the absence of the mucous râle, and from the respiratory murmur being heard throughout the lungs, I would open the windpipe. But it is idle and useless to do this when the inflammation, engorgement and effusion of mucus, have extended into the thorax; the case is now bronchitis as well as laryngitis, and the operation can give no relief.

CHRONIC LARYNGITIS.

Laryngeal phthisis.—This form of disease has of late attracted much attention, and although it is not absolutely a new malady, as some suppose, is certainly more frequently met with in the last few years than formerly. It is known without difficulty. The sound of the voice is peculiar, or the aphonia is entire, the patient being able to speak only in a hoarse husky whisper, and with a painful and fatiguing effort. The larynx is the seat of uneasy sensations, and suffers when handled or pressed. There is a sibilant weak cough, usually dry and teasing; in some cases there is expectoration of a thin tenacious mucus, sometimes of a little pus. Dysphagia is occasionally the most annoying symptom, from inflammation of the epiglottis. There is dyspnœa and much panting, after muscular exertion. As the case progresses, the ordinary symptoms of phthisis supervene—emaciation, hectic, colliquative sweats, and diarrhœa.

Its *causes* are not clearly defined. It attacks most frequently the scrofulous constitution. Clergymen are observed to be subject to it, especially such as *read* discourses in public.

Autopsy.—The local changes after death are—1. Edema of the glottis. 2. Inflammation of the mucous membrane of the larynx, with redness and swelling. 3. Ulceration of this surface. 4. Ossification, caries and necrosis of the cartilages. It is rarely fatal, however, without the extension of the morbid action downwards along the trachea and bronchi, and the supervention of pulmonary inflammation with its usual results.

Treatment.—In the first instance blood-letting, both general and local, is demanded, with the application of poultices and sinapisms to the throat. Emetics are often serviceable in relieving paroxysms of dyspnœa. Mercurials are strongly recommended by Trousseau and Belloc in France, who urge them to the production of ptyalism, and by M. Hall in England. I have not derived much benefit from them.

Narcotics are always useful. The Dover's powder, if well borne, is to be preferred; the salts of morphine are among the best palliatives. They may be applied to blistered surfaces with ben-

efit. Inhalations of vapor, simple and mingled with ether, camphor, chlorine, &c. have been recommended. In cases of dysphagia, I find the nitrate of silver highly serviceable as a gargle or wash to the throat, but have not been able to introduce it in any mode into the larynx, as some ~~suppose~~. propose

BRONCHITIS.

By this term is meant the inflammation of the mucous membrane which invests the air-tubes—the trachea and bronchi, and the cells of the lungs. It is divided into acute and chronic.

Acute bronchitis resembles closely, in the first instance, an attack of catarrhal fever, from which it is then only distinguished by a more special prominence of the tokens of local and thoracic irritation and inflammation. Its access is usually with a chill, accompanied by a sense of soreness and stricture in the trachea, and a tickling, dry, and frequent cough; fever soon follows, with harsh hot skin, flushed face, thirst, pain in the back and limbs. In some cases the dyspnœa is urgent, with a distressing tension across the chest, and much pain in coughing. The patient cannot lie down—a crepitous rattle is heard and felt throughout the thorax; but though oppressed with the accumulating mucus, he cannot expectorate. Resonance upon percussion is dull, and the respiratory murmur is impaired very generally over the thorax. promptly If these symptoms be not ~~properly~~ relieved, he may sink exhausted by his struggles; or the expectoration becomes somewhat freer and fuller, and the disease subsides, or passes into a chronic condition.

Post-mortem examination shows the mucous lining membrane highly injected and thickened, the tubes and air-cells being filled with a secretion of varied appearance, sometimes a tenacious ropy mucus, again a thick purulent fluid, mingled occasionally with a serous, ichorous, or sanious effusion. The substance of the lungs partakes of the results of the inflammation, and its tissue is solidified, or as the phrase is, hepatized, and incapable of collapse.

Causes.—Exposures to cold, moisture, and alternations of temperature, are familiarly known to produce bronchitis. It has been excited by inhalation of some of the irritating gases. It is

more frequently met with among persons engaged in certain occupations—millers, cotton-ginners, needle-grinders, &c.

The *prognosis* is readily inferred from the degree of dyspnœa, and the apparent ability of the patient to struggle with the impediment to his breathing, and to bring out from the air passages the offending mucus. Free expectoration is therefore favorable, and a hard dry ringing cough the reverse. Very old and infirm persons, and young children, suffer the most serious risks.

Treatment.—Venesection is in most cases an indispensable remedy, and must be promptly carried to as great an extent as can be borne without injury. *Emetics* are highly serviceable, both as expectorants and diaphoretics, and are peremptorily demanded in the cases of infants and the very aged. They may be repeated from time to time. Ipecac., squill and seneka are preferable; if these are not sufficiently active, tart. antim. may be added. *Cathartics* are useful. I select the saline, and combine them with diaphoretics, as the infusion of serpentaria or seneka. Much has been said against the employment of cathartics in thoracic diseases, but these objections are speculative—experience shews them to be, *in the early stages*, not only safe, but admirably beneficial. In the advanced periods of such cases they are not required, but the bowels should be kept regular and soluble throughout. *Nauseating* doses of antimony and other diaphoretics are much extolled. I am not fond of the practice, but prefer to use the same remedies in less amount, so as to reduce the undue force of the circulation.

When the febrile excitement is in some measure subdued, *opium* is an invaluable medicine. Dover's powder is a good combination, to ensure its effect as diaphoretic and anodyne.

Of topical applications, after cupping I prefer warm poultices, with which I envelope the throat and cover the chest. Leeches imply too much exposure. To relieve the cough, demulcents are required; mucilaginous mixtures with opium form the basis of the most valuable. Spermaceti, formerly so often prescribed, is now too much neglected.

In the bronchitis of infirm old people—the Peripneumonia Notha of writers of the last age—stimulating diaphoretics and stimulants are demanded, and must be given freely. Camphor and

ammonia are among the best. Opium must be prescribed with some caution. The strength must be supported with wine-whey, wine, &c. We cannot detract blood from such patients, but dry cupping will often be of service—the mustard poultice should be applied—and here also blisters will be found well adapted.

Chronic bronchitis is usually a consequence of the acute form, but may occur as a primary affection, in which case it is developed slowly and insidiously. There is cough, with slight soreness of the trachea and thorax—a sense of stricture and tightness, increased on drawing a deep breath; the voice is somewhat hoarse, and a crackling or râle is felt and heard in breathing. The cough becomes more harassing and severe; the expectoration, at first scanty, increases in amount, and changes from mere mucus to a muco-purulent consistence, sometimes colored with a little blood. In a few cases hemoptysis may happen, but this is not frequent. Respiration is hurried, and panting attends any muscular exertion, or the ascent of a stair. The pulse is tense and frequent, and a febrile exacerbation shows itself at first in the evening, going on to a full development of hectic, with night sweats, emaciation and great loss of strength, diarrhœa, &c.

Autopsy.—The bronchial mucous membrane is high colored and thickened, and occasionally eroded with ulcers. The lungs are found hepatized or solidified—the air-cells and tubes filled with muco-purulent matter, mingled with a frothy and bloody serum.

Prognosis.—The unfavorable indications are chiefly drawn from the degree of dyspnœa in the early stages, and at a late period from the atrophy and emaciation which waste the patient. An extreme frequency of pulse is unfavorable—so is the absence of the respiratory murmur in a considerable portion of the lungs, with a loss of the proper degree of resonance on percussion.

Diagnosis.—The distinction between chronic bronchitis and tubercular phthisis is often difficult. In the latter there is less crepitus or râle—less soreness of the trachea and thorax—more tendency generally to hemoptysis, and less expectoration in the early stages. In their latter progress we can draw no line between them, except from their previous history.

Treatment.—The lancet is in most cases required, but must be employed with caution. We derive most advantage from small bleedings repeated. Leeches may be applied to the throat, and cups to the chest, with benefit. Even after we can no longer detract blood, dry cupping the thorax is useful, as revulsive. *Emetics* are much confided in, and great stress laid on preference due to particular articles. Ipecac. is generally chosen —some combine it with tart. antimon. and others with the sulph. cupri. The utility of emetics is unquestionable; they are expectorant, diaphoretic, and in most instances move the bowels sufficiently. To soothe pulmonary irritation and keep up a constant determination to the skin, we may exhibit a combination of the nitrat. potass. with Dover's powder, allowing a full dose of anodyne nightly at bedtime. A choice of the numerous preparations from opium may be made to suit each particular case. I do not think any other of the narcotics, as the lactucarium, hyoscyamus, &c. entitled to our confidence. The digitalis may do service when the pulse is particularly frequent. Squill is highly prized by some as an expectorant.

The infusions of serpentaria and seneka, afford good bases for the mucilaginous, demulcent and anodyne solutions, administered to relieve the troublesome cough. In threatening cases, I would advise an unhesitating resort to an alterative mercurial course. Calomel in small doses, or the blue pill, may be so given as to produce highly beneficial results, while it should not interfere with the proper employment of such other remedies as may be demanded. Inhalation of various airs and gases has been proposed; but after a fair trial, I have abandoned them. The vapor of ether, in which conium has been macerated, that of burning tar and of resin, iodine and chlorine, have been extolled.

The several balsamics were formerly much in vogue. Myrrh, tolu, and copaiva, are the best of them. "Pine-gum pills" and "lightwood rum," are common domestic prescriptions in the south and southwestern states.

Tonics may be made of great benefit, by a proper selection of the period for their exhibition, and the cases to which they are adapted. I would use them when the tokens of muscular debility and general relaxation were more prominent than those of

local irritation or febrile excitement. The infusion of cinchona with mucilage, is lauded by Broussais and Hastings. The elixir vitriol and tinct. mur. ferri, are also useful. They aid in restraining nocturnal sweats.

The persevering application of counter-irritants to the chest and arms, will be of great advantage. I prefer to blister successively one and another portion of the surface. The tartar emetic is a favorite irritant with many physicians, while others still prefer setons and caustic issues.

The convalescent must take as much exercise in the open air as he can undergo, without fatigue. A long journey or a sea voyage should be advised, and an equable climate chosen. Flannel should be worn next to the skin, and all undue exposure avoided.

PLEURITIS.

Pleuro-pneumonia—Pleuro-pneumonitis—Pleurisy.—Under this head I propose to treat of *Acute Pneumonia*, as well as of inflammation of the pleura, in all its extent, and its various local connections and subdivisions. In their access and early stages, it is not possible to distinguish inflammation of the pulmonary tissue from that of its investing membrane, although in their results and consequences there may be some ultimate difference. Besides this, they never occur separately or entirely independent of each other; and in a practical point of view, the diagnosis is as unimportant as it is confessedly difficult—the indications of cure, and the details of treatment, being precisely the same in both.

Pleurisy is a common and well known disease; usually met with in winter and spring, and frequent in occurrence in proportion to the degree and suddenness of the changes of these unsettled seasons. It comes on with pain in the thorax—most often perhaps the right side—fixed and circumscribed, and much increased by a deep full inspiration; the breathing is therefore hurried, short and catching, and the patient assumes a bent posture, leaning to the affected side. Fever soon supervenes, with sharp and rapid pulse, a skin hot and dry, and a harsh cough, which aggravates intolerably the thoracic pain.

The results or "terminations" of this inflammation, if it progress unchecked, are somewhat various, but from the importance of the organs attacked are full of suffering and danger. The most common is the effusion of fibrine or lymph, (in layers upon the serous membrane,) which becomes organized and causes adhesion between the opposite surfaces of the pleura pulmonalis, impeding somewhat the movements of respiration, and occasionally giving pain. Under this false membrane are occasionally seen streaks of purulent matter. The pulmonary tissue not unfrequently becomes solidified, losing its light cellular texture; this change is spoken of as hepatization of the lung, which seems granulated and assumes a livid brownish color. Allied to this condition, is the establishment of chronic inflammation of a portion of this tissue, tending to the formation of abscess, and perhaps the development of tubercle—chronic pneumonia, one of the recognized forms of phthisis pulmonalis. Cullen speaks of a sanguineous infiltration into the cellular structure of the lungs as a common termination of pneumonia when it proves fatal. This differs little, if at all, from the pulmonary apoplexy of late French pathologists.

Chronic pleurisy, with effusion of sero-purulent fluid, is mentioned as an ordinary result or sequela of the acute form. It is known by the continuance of dyspnœa after the earlier acute symptoms have subsided—by fullness of the affected side of the thorax, perceptible to the eye and ascertained by measurement—by want of resonance or percussion, and of the natural vibration of the chest, felt by the hand applied, while the patient breathes or speaks, and by the absence or dullness of the respiratory murmur.

Hydrothorax—Hydropleura—is regarded by some as a termination of pleuritis, acute and chronic. I have discussed the subject elsewhere in speaking of hydropic affections.

The *causes* of pleuritic and pulmonic inflammation have been already pointed out, as exposure to cold and moisture, and to sudden changes of temperature. External violence may give rise to it; the puncture from spiculæ of a fractured rib occasion it, and a fatal case is on record where the pleura was injured by a needle employed in passing a ligature round the subclavian artery.

Prognosis.—In our warm climate, pleurisy may be regarded as a highly manageable disease, and attended with little danger if the patient is seen early. In the first stage, the degree of danger may be inferred from the extent of the inflamed portion of surface, the violence of access, and the capacity of the patient to bear the necessary remedial measures. As the case progresses, the increase or obstinacy of the dyspnœa is unfavorable. By exploring the thorax, we derive infinite information of the condition of the thoracic viscera. All tokens of effusion or deterioration of structure, are of course to be dreaded.

Autopsy.—In speaking of the results or terminations of pleuritis, we have anticipated a description of the changes found *post mortem.*

Treatment.—The *lancet*, used promptly and boldly at the onset of the disease, will often put an end to it at once. It is to be resorted to at all stages while the *breathing is painful*, unless the pulse is specially feeble, and the strength of the patient has notably failed. Topical depletion by cups, which should be applied on and near the seat of pain, is next proper; after which, large warm poultices should be laid over the thorax. At this stage a full and free dose of an anodyne diaphoretic, will often put an end to the attack. Dover's powder is perhaps to be preferred, but the tinct. op. camph. has frequently succeeded in my hands.

Cathartics are highly useful; and in severe cases, those which are somewhat drastic and irritating, should be chosen. No prejudices have less foundation than those which exist against the use of purgatives in pulmonary inflammation. They are among our best revulsives, but their employment should be confined to the early periods of acute cases. It is advantageous to combine an antimonial or other diaphoretic, as in the common formulæ of jalap with pulv. antimon., or of the nit. potass. with jalap and antimon. tart. I have seen little or no benefit from the exhibition of emetics, so strongly recommended by some. Among the vegetable diaphoreties, the infusions of seneka and serpentaria, and the Asclepias decumbens, are deservedly extolled. The combination of ipecac. with opium in Dover's powder, is an invaluable remedy; a full dose of it should be given nightly, and

it may often be added at regular intervals to such other medicines as may be prescribed through the day. The demulcent drinks, formerly spoken of, may be taken to relieve cough. Where some pain remains after the febrile symptoms have been subdued, and the pulse has lost its force and tension, the part should be repeatedly blistered. Where effusion is ascertained to have taken place in the cavity of the pleura, the urgency of the dyspnœa may demand the operation of paracentesis.

Bilious pleurisy.—The thoracic inflammations which occur early in winter and spring, in our low miasmatic regions, are apt to be combined with notable spmptoms of gastric and hepatic disorder. I have been disposed to attribute the modifications to the impression of malaria; an English writer of some authority, speaks of it as owing to an atmospheric and epidemic influence. In this form less vigorous depletion by the lancet is required or admitted of, than in simple pleurisy. Emetics are more useful—cathartics are prescribed more freely, and the mercurials selected. Blistering is earlier resorted to. The bark is said to be serviceable in protracted cases.

Convalescence from pulmonary inflammation, requires great care and prudence. The clothing should be warm, and all exposure cautiously guarded against.

PHTHISIS PULMONALIS.

Under this head I include chronic pneumonia and tubercular imflammation of the lungs. Dr. Duncan divided consumption into three kinds. 1. Catarrhal consumption, identical with chronic bronchitis already treated of. 2. Apostematous consumption, our present subject; and 3. Tubercular consumption, which shall be considered next in order.

Chronic pneumonia, with abscess, is not so rare a disease as it is represented to be by Laennec and some others. It has been alluded to as among the sequelæ of pleuro-pneumonia, and may perhaps follow catarrhal fever and bronchitis. I have seen it twice occur from gun-shot wound of the lung; in one case it was fatal, the other recovered after long protracted illness. Wounds of the lungs, however, often heal kindly. It may supervene

upon asthma, and results from tenacious gastric and hepatic derangements, constituting the dyspeptic phthisis of W. Philip. Hemoptysis is said to produce it, but is in general only a coincident effect from the same cause. Some of the exanthemata, as measles and small pox, render the patient exceedingly liable to it. It has been brought on by the suppression of itch and other cutaneous eruptions.

An obvious predisposition is supposed to be found in a flat or narrow or otherwise ill-constructed thorax. Sedentary occupations, which exclude from fresh air and free exercise, predispose to it; so do all such trades as subject the respiratory organs to mechanical irritation, as with millers, needle-grinders, cotton-ginners, &c.

The formation of pulmonary abscess is attended by a fixed heavy pain in the thorax, pulsatory, or at intervals sharp and lancinating. There is dyspnœa which does not admit of muscular exertion, and is increased also on lying down, especially if the patient attempts to rest on the sound side; but this rule is not without exceptions. The cough is severe, but at first without expectoration. The abscess sometimes empties itself through small openings and gradually, but in general bursts and discharges its contents freely and suddenly, pus being coughed up in quantities, varying from ounces to pounds. There is great relief at the time, and the expectoration continues abundant for a while after, consisting of pus mixed with mucus and sanious serum. Recovery sometimes happens at once from this state, but more commonly hectic supervenes, in place of the inflammatory type of fever which had attended the formation of the abscess; there is great emaciation and muscular debility, the voice is weak and hoarse, and colliquative sweats and diarrhœa terminate the tedious train of suffering. The pulse is at first tense and quick, and in some cases full; after the abscess is matured, it becomes very frequent and more contracted. The digestive system in many instances remains unimpaired until the last stages, diarrhœa then coming on, with redness and ulceration of the lips, cheeks, gums and tongue.

The *prognosis* is unfavorable, holding, perhaps, a middle rank between bronchitis and tubercular phthisis. When a case occurs

in a person of well-formed chest, previously healthy, and from a transient and notable cause, there is good hope of restoration.

The worst symptoms are great emaciation and debility. By careful exploration of the chest, we can ascertain the extent of the pulmonary disorganization, to which the danger is pretty regularly proportioned.

The duration of apostematous consumption is very various, from a few weeks to many months.

Autopsy.—Laennec and Andral declare it to be quite uncommon to find pus in a circumscribed cavity in the lung in this form of pulmonary disease, the frequent mention of abscesses by other pathologists, being attributed to their having mistaken tubercular vomicæ (to be hereafter spoken of) for abscesses. They describe purulent infiltration as supervening upon hepatization, the color being changed from red to gray, and the matter being diffused through the lungs, the texture of which is broken down and softened. There is, however, good proof that encysted or circumscribed abscess does occur. A large one is described by Laennec himself. Nor can we otherwise account for the fact of large and sudden evacuation of pus, after pulmonic inflammation, cough, &c. have existed for some time. Such cavities are lined by a false membrane, or layer of organized fibrine.

Diagnosis.—Apostematous phthisis is attended with more pain and dyspnœa, than chronic bronchitis or tubercular phthisis, and with less expectoration than the former, for some time from the commencement. If a considerable amount of purulent matter be suddenly discharged, we infer that it must have collected in an abscess. The physical signs of this state of the lungs are, the lessening of the capacity of the thorax, the dull sound upon percussion over the pained part, and the loss of respiratory murmur there, and after the abscess is empty, pectoriloquism.

Treatment.—While pain urges, and until the failure of pulse and strength absolutely prohibit, *venesection* to small amount should be repeated occasionally. Cupping the affected side of the chest, at first with, and then without, the scarificator, will be of much service. Large warm poultices are also useful. Blisters applied in long succession are among our best remedies. When in any way unsuited, the ung. ex tart. antimon. may be substituted.

Emetics have been much employed by different physicians, and with very different views. Some suppose them specially adapted to procure resolution and absorption of any deposit; others use them perseveringly as the most efficient revulsive. Some prefer ipecac. alone; others prescribe it in combination with the sulphates of zinc and of copper.

The *antimonials* have been highly eulogized, by some as the best emetics, by others, for the property of reducing the pulse and exciting protracted nausea; while Laennec and many continental physicians, look upon the tart. antimon. as gifted with a specific remedial influence, and give it in large and increasing doses as a contra-stimulant. These consider it as most beneficial when alone and uncombined. In this country, it is often exhibited in combination with nitrat. potass., to reduce vascular excitement and determine to the surface, or with the infusion of seneka and serpentaria. With similar views and as exerting a tranquillizing influence of great advantage, I employ the Dover's powder, both before and after purulent expectoration has appeared. *Mercury*, in small doses, is occasionally administered with much benefit; but it is not adapted to all cases, nor should it be carried to the extent of an irritating ptyalism. In the first stages, it is useful in moving the bowels gently, and subduing any gastric or hepatic disorder that may be present.

Digitalis has been the subject of extravagant eulogy; but I do not consider its remedial influence as well marked or striking. It is best adapted to cases where great frequency of pulse exists, and the tokens of inflammatory excitement are not particularly high. The *prussic acid* has been in like manner extolled, and some authentic reports made in its favor; but it has not retained the confidence of the profession. After the abscess has been ruptured, as will be known by the sputa and pectoriloquism, if the expectoration be free and without pain, we may derive advantage from the infusion of cinchona, with which mucilages and anodynes may be united. The mineral acids are also serviceable as tonics here. On the other hand, if there still remain tension across the chest, with a harsh cough, it may be necessary to take blood from the arm, and apply the cups and the poultices or vesicatories, and even to administer an emetic, which will often give

great relief. If diarrhœa should come on, it must be restrained by the acet. plumbi, kino, or such other astringent as is best adapted; while we indulge the patient with free doses of opium, which will aid in checking the alvine disturbance, while it subdues, in an unequalled degree, the pulmonary irritation and cough. Among the numerous formulæ prepared by modern chemists from its constituent principles, some one will surely be found without objection. The other anodynes may be tried—thridace, lupuline, hyoscyamus, conium—but I have no confidence in any of them. With a view to promote the healing of the abscess or ulcer, inhalations of gases, and even of finely pulverized bark, and other remedies, have been advised. Iodine has been tried, chlorine, the vapor of tar, of resin—several of the gases less stimulating than common air, as mixtures of hydrogen, nitrogen, carbonic oxide, &c. I cannot express any confidence in these measures. The balsamics are also in ancient repute for the same purposes. If any good be done by such prescriptions, it must be in an indirect way. Our best hope is, in keeping the constitution at its highest point of tone and vigor. As soon as the patient can bear it, exercise in the open air must be advised. He should take a journey or sea voyage. Flannel should be worn next the skin, and a diet chosen for him, nourishing, but unstimulating.

TUBERCULAR PHTHISIS.

This insidious and fatal form of pulmonary inflammation derives its name, as well as its other characteristic peculiarities, from the presence of *tubercles* in the lungs. It is therefore proper here to enter into the consideration of their nature and origin.

Tubercle is variously described by authors. In the condition most commonly met with, it is a pale yellow or yellowish gray, opaque, inorganic substance, somewhat resembling cheese in appearance, soft and friable. Carswell regards the mucous and serous surfaces and the blood "as the exclusive seats of tuberculous matter"—it is principally found, deposited in the first of these positions. It is composed of albumen, gelatine and fibrine, with a very small proportion of muriate of soda, and phosphate and carbonate of lime. The majority of pathologists suppose it to be

deposited in this solid form—Cruvelhier asserts it to be at first fluid. Laennec contends that a tubercle grows by intussusception, but the opinion of Andral prevails, that it increases by the successive deposit of molecules around the primary granule. When deposited, "each granule," says Morton, "retains its appropriate tunic of cellular tissue." The deposition may go on until the mass shall occupy an entire lobe of the lung. The softening of a tubercle is not well explained. Laennec and others contend that it always commences in the centre—a view hardly consistent with the acknowledged inorganic state of the mass. It seems more probable that it results from inflammation of the interstitial cellular tunic above spoken of, upon whose surfaces pus is effused, mingles with and macerates the tuberculous matter. Tubercles are not constant in their form. They are often rounded and contained in a sort of circumscribed cavity, in a cyst, the inner surface of which secretes purulent fluid.

But tubercle, it is well known, is not confined to the lung; it is met with, as mentioned in the lecture on scrofula, in many and various locations, and is so often connected with the other phenomena of strumous disorder, that it is by many supposed to be exclusively the product of scrofulous constitutions. Whether this be absolutely true or not, it is certain that scrofula constitutes an obvious and strong predisposition to the formation of tubercle, and that tubercular phthisis is hereditary and of lamentably common occurrence in strumous families.

Some pathologists still maintain the independent vitality of tubercles, regarding them as parasitic—a sort of hydatid perhaps.

Another question of great importance is, whether tubercle is ever the result of common inflammation, in a constitution previously sound. The alarming opinion that it can be thus developed, is held by Andral and others; but I am inclined to think, that inflammation is only to be regarded as the exciting cause of the series of symptoms which constitute phthisis. The deposition of tubercle I believe to be independent of, and often unattended by, inflammation in any form or degree. When this deposition has taken place, it may go on, and by its bulk excite inflammation round it, and thus develope phthisis; or it may remain in minute mass and indolent, until inflammation of the

surrounding parts shall be excited by some extraneous cause, when its interstitial cellular investment shall secrete pus, and by this process soften the tubercular mass—pleuritis, pneumonia, and bronchitis being thus converted into tubercular phthisis.

Phthisis, by a large proportion of writers of a past age, and in many countries now, was and is considered as communicable or contagious; and within my own observation so many circumstances have occurred which seem to confirm the doctrine, that with Cullen, "I dare not assert that consumption is not contagious."

Symptoms.—The access of this fatal malady is often extremely gradual and obscure. The patient is scarcely disposed to complain, though harassed by a dry hacking cough, with occasional pain in the chest, heavy and deep seated. There is languor and debility, and after a time notable emaciation, though the appetite is unimpaired and the digestion good. Hemoptysis may now and then follow a fit of coughing, though the hemorrhage is not apt to be very large. As the case progresses, the respiration becomes hurried, with frequent pulse; on ascending a stair, the patient pants and his countenance is pale or livid; he cannot lie down at night without uneasiness, or is confined to one side or to his back; there is oppression or tension of the thorax, with a disposition to stoop or lean forward; hectic ensues, with its long train of derangement and suffering, colliquative sweats and diarrhœa, the tongue and mouth being covered with aphthous ulcers, though the inclination for sapid food may hold out to the last; and the patient ultimately sinks, after an indefinite protraction of his tedious disease, into absolute atrophy or marasmus.

Prognosis very unfavorable—recovery scarcely to be hoped for. It can hardly be possible that a single tubercle, or even one mass of tubercles, exist alone—if so, there might be a softening and expectoration of them, and the patient would be in the state described under the head of apostematous phthisis, after the rupture of the abscess. It might heal. But the formation of tubercle in the lung is generally a mere portion of the general diathesis or constitutional derangement, and similar deposition goes on or is repeated from time to time. It is consoling, however, to know that in many instances, an indefinite protraction of life is attainable by judicious and proper management.

Diagnosis.—The unfavorable prognosis which a melancholy experience enforces from us, requires from us great care in distinguishing this, from more hopeful forms of disease. The pathognomonic signs are not very clear. The slowly progressive, gradual increase of the symptoms will attract our notice. We will inquire if the patient be of strumous family, or have exhibited in early life any scrofulous development; or if his parents or ancestry have died of consumption. His expectoration will not be abundant, and mixed with much mucus from the first, as in bronchitis; nor suddenly augmented, with pus, as in the bursting of a vomica. The pain will not be at any time as acute, in any part, as it is from the commencement of pleuro-pneumonia, although it will in its progress be actually complicated with this affection; nor will there ever be so general a soreness of the respiratory tubes, as in the former.

There is in these cases too, a tenacious cheerfulness and resolution, and hope of recovery, proverbially noticeable. It lasts until the impairment of the digestive function, which is often delayed to the very last moment of life. The physical signs are rather negative than positive in the first stages; the absence of respiratory murmur may be remarked in more than one spot of the thorax, and after a time pectoriloquy will be distinctly observable.

We should be aware that tubercular phthisis may go on to a fatal termination without pain in the thorax, or dyspnœa in notable degree, or cough. I once saw a patient die, the nature of whose case (from the absence of these symptoms) was not detected, the right lobe of whose lung was found, after death, a mere mass of tuberculous matter. I attended, in the last weeks of his life, an eminent literary gentleman, whose physicians had treated him for chronic hepatitis and diarrhœa. He was surprised at learning that his lungs were at all diseased, as he had labored under no difficulty of respiration, and almost no cough, but desired that his body should be examined. In complying with his request, I found his liver little, if at all affected, and his lungs full of tubercles.

The relations of phthisis with other diseases should be noticed here. Its connection with other and more obvious forms of scro-

fula has been mentioned. Children who have been specially subject to epistaxis, are apt to fall into phthisis after puberty. Hemoptysis is also a coincident effect of the same malformation and defect of organization which predisposes to phthisis.

Fistula in ano is very often observed in subjects predisposed to phthisis, and even after phthisis has commenced; in this case it may suspend or protract the progress of the latter indefinitely. There is said by authors to be a similar connection or alternation between *mania* and *phthisis*, but I have had no occasion to remark any thing of the kind. *Intermittent fever* has also been supposed to exert a suspensive or protracting power over phthisis. I doubt this—nay, I have seen our ordinary malaria fevers repeatedly develope phthisis, and excite it in subjects predisposed. It is well known that the condition of *pregnancy* will almost invariably suspend, even in its advanced stages, the further progress of phthisis, and that the feeblest patient will almost certainly live until she is delivered. Lactation does not, however, continue the privilege, and such a patient will sink sooner if permitted to nurse her child.

Treatment.—Little remains to be added, to what was said under the last head, on this subject. A tubercle is an inorganic substance, and so far as can be positively stated, is not injurious, otherwise than as a mechanical irritant, whose presence produces chronic pneumonia, with abscess, and sometimes excites, perhaps, an attack of acute pleuro-pneumonia. As we are not able to remove the cause, our principal indication is to palliate the effects; and this is best done, as has been already shown, by blood-letting, antimonials, digitalis, opiates, &c. From the analogy of its usefulness in other forms of scrofula with tuberculous deposite, iodine is the subject still, of hopeful experiment. I have been pleased with the apparent benefit derived in some well marked cases from the deutiodide of mercury and potassium.

In no disease can the general subject of prophylaxis be of greater consequence. Children of scrofulous or consumptive parents, or who have suffered much from epistaxis, or who exhibit notable malformation of the thorax, should select for their future occupation through life, such employments or situations as shall admit of, or require, the full development of muscular power, by active

exercise in the fresh air. Phthisis can neither be prevented nor cured, nor even long protracted, otherwise than by exercise constantly and habitually taken under the open sky.

ASTHMA.

Defined to be a species of dyspnœa, paroxysmal, spontaneously remitting and recurrent. Divided by writers generally into two forms—the dry, nervous or spasmodic, and humid or humoral asthma—the distinction referring to the presence or absence of mucous râle and expectoration.

A paroxysm of asthma usually comes on at night—is often preceded by flatulence, a loose griping stool, heartburn and other symptoms of indigestion. The patient awakes from his first sleep with a sense of uneasiness and constriction of the chest, difficulty of breathing and cough. He is forced to sit up, nor can he bear the weight or pressure of any clothing or fastenings about his neck or body. Respiration is effected with wheezing and panting, and great muscular effort. At first the cough is dry, but after a time a frothy mucus is brought up, occasionally tinged with blood—this is attended with relief. In the worst cases, there is neither cough nor expectoration. These symptoms, depending on the affection of the respiratory organs, are uniform; those which arise from the sympathetic disturbance of the general functions, vary with the condition of the patient. In the robust and plethoric, and in recent cases, the pulse is full, hard and frequent—the countenance flushed and turgid—the eyes suffused and prominent, with much tension and pain of the chest. On the other hand, when the disease has become habitual, and the patient is feeble, the face is pale or livid, the surface cold and moist, the pulse small and weak, and the tokens of gastric derangement more marked and prominent. The duration of a paroxysm is uncertain; it remits usually at the approach of morning, the dyspnœa continuing, however, in some degree, through the day, with more or less cough, and the exacerbation again recurring at night; these changes go on for a few days before the entire subsidence of the attack; it has endured for weeks.

The general prognosis is favorable as regards the danger of a fatal issue—few die; it is unfavorable as regards the hope of a cure—few recover. Besides the impairment of the constitution universally, which must follow the repetition of paroxysms of asthma, it sometimes developes hydrothorax, chronic bronchitis, and phthisis pulmonalis.

Autopsy.—Asthma is found accidentally connected with a great many lesions of the viscera of the thorax, but is clearly proved to be essentially independent of any of them. The most frequent organic change in the asthmatic, is emphysema of the lung, the cells being found distended—several of them dilated into one cavity—and incapable of collapse. Even this, however, is far from being constant; and numerous cases are recorded, in which there was no notable deviation from the natural state of the lung.

The *pathology* of asthma is difficult and obscure. The difficulty of breathing is twofold, and urges both during expiration and inspiration. It is hence plausibly suggested, either that the muscular fibres of the bronchi are every where rigid, refusing both to contract and to dilate; or, that in some portions of the air-tubes, these fibres are spasmodically contracted, resisting both the entrance and exit of air.

Causes.—A predisposition is obviously derived from vicious conformation of the thorax, or of some of the organs contained in it, either accidental or hereditary. A first attack generates a strong tendency to recurrence. Paroxysms are excited by exposures to change of temperature, or to cold and moisture, to the bad air of crowded apartments, to certain of the gases, and to some odors. They come on after full meals, late suppers especially, violent muscular exertion, loud singing and speaking, and supervene on repelled eruptions. It seldom appears early in life; I have, however, seen a well marked case in childhood.

Treatment.—During the paroxysm, it may be necessary to employ the lancet, if the pulse be full and hard, and the patient robust. It is especially called for in the early stages of cases which present marks of thoracic engorgement or inflammation. Cupping the chest is also a useful measure, under these circumstances. But we must be cautious not to detract blood in the opposite conditions—when the patient is feeble and the asthma

habitual. *Emetics* are highly beneficial in many cases; given at the beginning of the attack, they often cut it short, and if this fail, may be repeated after a time; they are among our best expectorants, and are indispensably necessary when the patient has indulged in a full meal just before going to bed. It is well, too, to have the bowels opened by a purgative enema. Many of the narcotics enjoy great repute for the relief of asthmatic dyspnœa. Tobacco, stramonium, Lobelia inflata, the spider's web, coffee and opium, have their eulogists. I prefer the last mentioned, and in combination with camphor, ether, or ipecac. have seen it of immediate and striking advantage. Inhalations of various gases have been tried, but with no very obvious good results. Galvanism deserves more general employment and confidence. My experiments with it have been successful and gratifying.

In the prophylactic management of the asthmatic, we must depend more upon regimen than medicine. If any disorder of the digestive system, or any chronic pulmonary disease exist, we must endeavor to remove it. We must aim to restore the patient to full and perfect vigor of constitution, by air and exercise. We must attend to the place of his abode, for there are particular localities in which asthmatics suffer much, though in regard to the situation best fitted for each, no general rule can be laid down. The matter must, therefore, be decided by experience.

PERTUSSIS.

Tussis convulsivus—*Bex convulsiva, Kink-cough, Chin-cough, Hooping cough*—these are all significant appellations for the well known disease now to be spoken of. It is one of the specific contagions—often becomes epidemic—does not attack usually more than once the same individual, although this rule is liable to exceptions. Hence it is most frequently met with in young children. It invades for the most part as a common cold or mild catarrhal fever. After a certain duration the paroxysms of coughing become more and more violent, and protracted and convulsive. Rapid and repeated expirations are made with vehemence, and then a sonorous inspiration, whence the common name Hoop-

ing cough. These paroxysms terminate with large expectoration or vomiting. The intervals between them are shorter or longer, and more or less perfect and free from uneasiness, in proportion to the violence of the attack. There is generally a considerable secretion of mucus in the air passages, with a loud râle. Pulmonary inflammation sometimes arises, with fever and great dyspnœa. In other cases there is a notable and prominent disorder of the digestive system, with diarrhœa, &c. Not unfrequently, too, there is much determination to the head, with convulsions.

The *causes* which occasion or render more violent a paroxysm, are a full or indigestible meal, any forcible muscular exertion, mental emotion, exposure to cold and moisture, &c. The average duration of hooping cough may be calculated at from six to eight weeks; it may be prolonged indefinitely by a renewal of catarrhal affections, with which it readily associates itself. It is said also to assume sometimes a periodical character, which gives it a tedious protraction.

Prognosis generally favorable. The greatest proportion of deaths happens among very young infants, who may die suffocated by engorgement of the air cells and tubes with mucus that they are unable to expectorate, and children who are teething—a complication which often gives rise to convulsions. The supervention of any of the more ordinary forms of pulmonic inflammation, is attended with danger; the diarrhœa, which is sometimes present, may become unmanageable and fatal.

Autopsy.—The traces found in post-mortem examinations of this disease, are not regular or uniform. It sometimes happens that no lesions or morbid changes can be pointed out. Most generally, however, the bronchial mucous membrane is irregularly reddened and injected in patches; while, at the same time, there are marks of determination to the head and engorgement of the brain.

The *pathology* of hooping cough is not clearly made out. Many deny the existence of inflammation as an essential condition; the majority, however, believe it to be an inflammatory affection of the bronchial membrane. Some very respectable authorities refer all the phenomena to cerebral and nervous disorder. Others still regard both cerebral and pulmonary inflammation as neces-

sarily present, and in some manner connected. Desruelles calls it a "broncho-cephalite." It cannot be a simple bronchitis, as we infer from the spasmodic or convulsive character of the cough which attends, and the peculiar manner of coughing.

Treatment.—It is made a question whether we have the power to cure an attack of this singular malady; and while some, denying this power, use their efforts merely to palliate the symptoms, others are engaged in the search after specific remedies, of which a large number is already accumulated. I would advise, as the great majority of cases are in the first instance attended with pulmonary disorder and inflammation, that they be treated as catarrhal fever or acute bronchitis, by general and local bloodletting, if severe; by emetics, purgatives and expectorants. The sulph. zinc has been supposed to deserve a special preference among emetics, and of the expectorants, squill and ipecac. The narcotics and antispasmodics are much used when the first stage has passed. I am much in the habit of combining with the camphorated tinct. opii, the tinct. mosch. fact., which I add to a solution of the carb. potassæ. The warm bath should be employed at night, and counter-irritation by mustard poultices frequently resorted to. Assafœtida is much extolled among the antispasmodics. Prussic acid is supposed by some to be almost antidotal; and in the same way the acet. plumbi, nit. argenti and cochineal, are prescribed, without any definite idea of the *modus operandi.* Of the tonics, cinchona and arsenic are justly preferred, and are well adapted to the relief of protracted attacks.

DISEASES OF THE SENSORIAL SYSTEM.

The functions of this important system are performed by the *brain*, the *spinal cord*, and the *nerves*—the diseases of which organs must be considered in succession.

PHRENITIS.

Inflammation of the brain and its investing membranes, is divided into acute and chronic. The latter is plausibly alleged to be

the proximate cause of most of the diversified forms of mental alienation or insanity, which varies in its history and symptoms in relation to the varying seats and nature of the cerebral affection.

Acute phrenitis is not often met with as occurring idiopathically or independently, but many of its phenomena arise sympathetically, in the course of other diseases; and in the class of fevers, this is so generally the fact, that Clutterbuck and others have maintained cerebral inflammation to be the primary location and essential condition of fever properly so called.

Acute inflammation of any portion of the brain and its membranes, commences with pain in the head, with a sense of fullness, heat, and throbbing; the eyes are red and suffused, and intolerant of light; the face is flushed and turgid; there is pain in the back of the neck, and down the spine; the scalp is occasionally tender to the touch; the stomach is in some cases oppressed, with retching and vomiting; the pulse is full, hard, and bounding; there is great anxiety and mental dejection, or even from the first wild delirium, which at any rate seldom fails to supervene early in the progress of the attack; the hearing is acute, and ordinary sounds occasion distress; there is pervigilium; the tongue is whitish and lightly furred, and the skin hot and dry. If the disease advance unchecked, the patient sinks into a soporose state; the eyes grow less and less sensible to light; there is perhaps strabismus or a fixed state of the pupil, at first contracted closely and afterwards widely dilated; the hearing is impaired; there is sighing, grinding of the teeth, tremulous debility; respiration and deglutition become difficult, and coma or convulsions precede death.

The *predisposition* is said to be sometimes hereditarily transmitted. It is found to exist in men of irritable and violent temper, and morbid susceptibility to mental emotion; in persons of sanguineous temperament; those accustomed to free and luxurious living; and in the profound student and ardent cultivator of literature.

The *exciting causes* are insolation, blows on the head, gusts of vehement or prolonged passion, and intemperance or excess.

Autopsy.—The appearances after death vary with the duration of the case. The vessels of the brain and its membranes are

turgid—lymph is found adhering to the surfaces of the latter, and connecting them by adhesions—serum is often effused over the surfaces and in the ventricles, and pus not unfrequently found mingled with it in considerable quantity. Gangrene is affirmed to have occurred.

Prognosis generally unfavorable. We draw the most gloomy inferences from the supervention of great debility, while the local excitement is unabated, and from the tokens of effusion and mechanical pressure, as paralysis, strabismus, deafness, stupor, coma, convulsions.

Treatment.—Blood-letting is universally acknowledged to be indispensable. Some open the temporal artery—some the jugular vein. That vessel is to be selected from which we can obtain the fullest and freest flow of blood. The head should be elevated, and persevering affusions of cold water thrown on it from some height. The scalp should be shaved; cups or leeches may be applied to the skull and behind the ears; but our best reliance is on the lancet and cold affusion, which I prefer to pounded ice, &c. The most active purgative doses should be given—a combination of the resinous and saline, I think should be preferred, and used freely and as long as the strength will bear. In the mean time the chamber should be kept cool and dark, and absolute silence enjoined. The head of the patient should be elevated, and abundant cold drinks allowed him. He must be perfectly controlled, and by such means as admit of no struggle or resistance.

The convalescence must be for some time guarded most carefully. The diet should be low, the mind kept free from care and anxiety, laxatives administered occasionally, and a total abandonment of such habits as may have predisposed to or excited the attack strictly enjoined.

CHRONIC PHRENITIS.

Chiefly shown in the varied disturbances of the intellectual functions, which are known under the head of Insanity. It is important to draw correct distinctions here, and separate from insanity proper—which I regard as uniformly depending upon

cerebral inflammation—the numerous modes of mental aberration arising sympathetically in the progress of many forms of disease, as transient and incidental conditions, and implying none of the circumstances of phrenitis.

The irregular and undefinable operations of the mind resembling insanity, in the absence of control, are not easily distinguished from each other, but must not be confounded—dreaming, reverie, absence of mind, somnambulism, exalted passion, enthusiasm, intoxication, modified by the different agents which produce it, delirium, melancholy, fatuity, idiocy and senile imbecility. It is impossible to define insanity—difficult by any form of words to describe it, so as to separate it from either of the above conditions, and yet there is little danger of mistaking them. In fevers we have delirium—in hysteria, there is fatuity or imbecility—in intoxication there may be almost every variety of mental disorder, disturbance and confusion—yet these are not insanity properly so called. Neither is the amentia or the amnesia attendant on epilepsy, apoplexy, and paralysis.

Causes of chronic phrenitis, divided into the moral and physical—the predisposing and exciting. Of *physical causes*, the predisposing are, 1. Hereditary transmission of constitutional peculiarities. 2. Intemperance or excess of any kind. The exciting are, 1. The causes formerly enumerated of acute phrenitis, or acute phrenitis itself imperfectly cured. 2. Gastric and intestinal disorders which, through the close and universal sympathies affecting the brain, act upon that delicate organ. 3. Genital or sexual affections which affect, in peculiar and inexplicable modes, the various portions of the cerebral tissue. 4. Metastasis of various morbid affections, as on the sudden disappearance of cutaneous eruptions, of gout, &c.

Of *moral causes*, the principal predisposing is found in education, including within that comprehensive term all that conduces to the formation of the character and habits. The imitation of parental peculiarities, eccentricities, and oddities, may thus be enhanced in the child into a forcible predisposition to some mode of insanity.

The exciting moral causes are obvious. The frequent and violent indulgence of passion, the fostering particular trains of

thought and emotion, whether pleasant or painful, irritate and inflame the organ of thought. Very sudden and great changes of condition, as from wealth to poverty, or vice versa, produce similar effects.

Pathology.—Bayle refers insanity to inflammation of the meninges, but Foville says, that "as the traces of inflammation are more constant in the brain than in the membranes, we must regard the former as the essential—the latter as the incidental condition."

Necroscopy indeed reveals to us a great diversity of morbid alterations. The membranes are thickened, injected, adherent both on their opposite surfaces and to the cerebral substance. This substance is injected, thickened—"occasionally," says Foville, "intensely red. The surface or superficial stratum of the cortical substance is firmer and denser than natural." Gall and Desmoulins have observed what they call "atrophy of the convolutions—more frequent in the frontal regions; sometimes an actual absorption, leaving chasms filled by serosity." Esquirol has described the presence of a multitude of small cavities in the brain, "from the size of a millet seed to that of a nut, containing fluid."

Diagnosis.—Insanity, as the sign, token, or consequence of chronic phrenitis, does not necessarily imply the loss or impairment of any of the intellectual powers; for the brain is a double organ, and it is rare that the corresponding parts on both sides shall be diseased. It consists in and depends upon the loss of the power of precise association, through which the mental operations are conducted to definite and calculable results. This inconsistency, irrelevancy, or *dis-association*, whether merely speculative or practical—this uncertainty of relation and succession in the intellectual actions, is the only uniform and essential symptom of insanity.

Mental derangement, as the effect or manifestation of chronic inflammation of the brain, may be divided into the following varieties. 1. Incoherence.—Some of the cases under this head exhibit a ceaseless activity of the mind, marked by the absence of all the principles and powers of regulation. Even the instinct and natural propensities seem often subverted, and the patient is

forgetful or ignorant of the meaning of words, or the connection between thought and action. 2. Mania, which has been often called moral insanity. Here the destructive and mischievous propensities are highly excited, with great cunning and contrivance in adapting means to ends. Among these were the demoniacs—the possessed of ancient times. Here also the subjects of erotomania, and the desperately profane and blasphemous, are generally to be classed. 3. Melancholy. 4. Hallucination, the form of insanity bordering most closely on delirium. Some of these hallucinations have been incorrectly, as I think, attributed to false impressions made on the organs of sense. 5. Monomania—a perversion of the judgment on one subject or set of subjects, and consequent perverted course of conduct or behavior in relation to them. This is often complicated with the former, but also exists independently.

With the disorders of intellect, there are always combined the obvious marks of physical disease. We find headache complained of by a great many—morbid vigilance, with restlessness. In many, the senses are morbidly acute. In a great majority they receive almost no impressions but such as are unpleasant and annoying. Convulsions, paralysis, apoplexy, not unfrequently supervene, in the progress of cases of chronic phrenitis. The tongue is foul and the breath fetid in most instances; sometimes a viscid offensive saliva is excreted in great quantity. There is depravation of appetite, and costiveness. The pulse is generally quick, frequent, and tense; in some melancholics it is slow. There is much inattention to changes of temperature, but the hands and feet are apt to be cold. An unpleasant odor often exhales from the entire surface of the body.

The *prognosis* is unfavorable. The tables published in regard to the proportion of cures in different lunatic asylums are calculated to mislead. Proper distinctions are not made between the infinitely diversified conditions of mental aberration resulting from various causes. Hysteric folly, delirium tremens, somnambulism, puerperal mania, &c. are easily and in very large proportions curable, and these are confounded with true insanity or chronic phrenitis.

Treatment.—In the use of remedies we must be guided by the state of the general system. If entonic, we must bleed both from the arm and by leeches and cups from the head and neighboring parts. *Purgatives* are also useful here; they should not be urged at any time into hasty operation, but a revulsive influence should be long exerted on the intestines. The nauseating and depressing effect of antimonials may be made of much benefit, if perseveringly kept up. *Mercurials* are sometimes serviceable. I do not depend on them in general, but they may be experimented with. They are best adapted to cases which exhibit notable disturbance of the digestive system. *Opium* is indicated by inordinate restlessness with pervigilium, the patient often suffering much for want of tranquil and refreshing sleep. In such cases, and those which exhibit, during the waking state, peculiar agitation, irritability, and other marks of general distress, I do not hesitate to administer anodynes, premising such precautions as may seem requisite—employing the necessary measures of depletion and revulsion, keeping the bowels properly open, &c. Digitalis has been often found of advantage. Cold applications to the head are frequently required. I prefer the occasional affusion of cold water from a height on the head, to the constant application of cold in any way, as it often annoys and irritates the patient.

I advise almost always the removal of the patient, when the insanity threatens to become permanent, to some well managed asylum. In such institutions only can we find and avail ourselves of the requisite means of physical restraint and moral control, not only necessary to prevent the patient from injuring himself and others, but positively and in a very high degree salutary in their influence, and remedial in their ultimate effects.

In atonic cases we must be careful to support the strength of the patient. He must be warmly clad, supplied with nutritious and agreeable food, and occasionally, though with much caution, indulged *pro re nata* in the use of diffusible stimulants. Of these, ammonia, camphor, and opium are to be preferred. Tonics are sometimes serviceable, and I have derived advantage from the exhibition of the sulph. quinine, with camphor in small doses, or minute quantities of some of the salts of morphine.

MANIA A POTU.

Delirium tremens—*Brain Fever of Drunkards—La Folie des Ivrognes, &c.*—Among the numerous appellations of this remarkable malady, I prefer to retain the first of those set down, as strikingly significant of the cause to which it is attributable. Until we have clearly designated its true pathology, we shall not be able to give it a title absolutely correct and entirely unobjectionable. It is not properly a fever. The line between delirium and mania is not distinctly drawn, and there can be no special impropriety in using the latter phrase, where there is so much mental derangement, with constant hallucination. Besides this, it runs so readily into phrenitis, acute and chronic, as to give good ground for this selection. Indeed, although I confess its *pathology* to be extremely obscure and ill-defined, yet I am rather disposed to regard it as a peculiar form of phrenitis, modified—1st. By the causes which produce it; and 2d. By the morbid condition of other organs, with which it is universally connected.

The *cause* to which it is exclusively ascribed, is intemperance in the use of ardent spirits—distilled alcoholic liquors. The influence of these agents is *slowly* developed in the production of Mania a Potu, which requires time, and which ultimately shows itself in various forms, according to the several diseases of other organs which may exist in each case. Some have maintained the necessity of a transient discontinuance of the use of ardent spirit, and a consequent exhaustion or prostration of nervous energy from the subtraction of accustomed stimuli. The fact, however, is not so. I have repeatedly seen attacks of the several modifications of Mania a Potu, supervening during the actual progress of a "*frolic*," or while the sot was living in his usual manner.

Symptoms.—In a majority of instances, the stomach has yielded long previously to the morbid effects of stimulating potations, and the liver and all the other chylopoietic viscera have suffered. There is total loss of appetite, with occasional retching and vomiting, especially in the morning; the bowels are irregular, usually loose with acrid bilious discharges; the hand and tongue are

tremulous, the latter thickly furred, with fetid breath, or smooth and fiery red. The mind is deeply depressed, and the state of intoxication into which the patient plunges for relief from this dejection, is often more gloomy and remorseful. At last, the patient wanders—he mutters incoherently and with incessant restlessness; or if he sinks exhausted into a brief and unquiet slumber, starts from it in terror which cannot be soothed. The pulse is weak and very frequent, his skin cool and clammy, his eye red and suffused. Convulsions may occur, but are not usually met with when the stomach is still disturbed with the frequent retching, so prominent a symptom of this form of the malady.

In some patients the brain suffers more immediately, and with much less gastric disturbance previously, or at the time. Some fit of intoxication, deeper and more prolonged than ordinary, terminates in a horrid convulsion, followed by another and another. The unhappy subject may thus die at once, or he sinks into a state of exhaustion, with cold skin, pulse indescribably rapid, and so feeble as scarcely to be felt, with countenance haggard and eyes half shut. After lying thus for some time, his muscular strength suddenly returns, and he becomes capable of prodigious exertions; he is haunted by some frightful hallucination, and becomes extremely dangerous to those about him, whom, in his frenzied anxiety to escape, he will assault and pursue with vehement malignity. This condition may run into acute phrenitis, and sometimes terminates in permanent insanity.

Others again with less obvious affection of the digestive system, and no acute cerebral disorder, sink into absolute imbecility, both mental and physical, mingled with a peculiar shade of gloom and despondency. The skin in such cases is hot and dry; the pulse is small, corded and frequent; the patient takes almost no food, and scarcely sleeps—seems always restless and uneasy; he affects solitude, often mutters to himself, and appears *alarmed causelessly*. In almost all, there is a notable predisposition to suicide.

The *autopsy* of Mania a Potu, developes nothing uniform or characteristic. A variety of lesions have been noted, but are not regular. The "anatomy of drunkenness," shows marks of extensive disease of the stomach, the liver, and the brain; the progress of the several changes or steps of disorganization, is propor-

tioned to the duration of sottish habits. But all these changes may have taken place, without the production of this particnlar form of disease.

The *prognosis* is generally favorable. Few die in Mania a Potu, and those few rather of the derangements of the constitution, which are the coincident effects of the cause which has produced the attack. The tokens of a specially unfavorable case are, obstinate pervigilium, which always threatens convulsions—a repetition of the convulsions, with brief interval—or the occurrence of coma. It is also unfavorable to find the pulse rising and becoming fuller and slower, while the mind continues perturbed. We have here to dread permanent insanity.

The *treatment* must be modified to suit the condition of the patient. *Venesection* is seldom necessary or justifiable. It may be required to obtain a respite from convulsions. When a *transitus* has taken place to the symptoms of acute phrenitis, the lancet must be freely employed; this is marked by fullness and hardness and comparative slowness of pulse, by the cessation of trembling of the limbs and tongue, and by a change in the manner of the patient, who is now fierce and resolute, and no longer full of tremor and vacillation. If there be no doubt on this point, the hair may be cut close, and leeches and cups applied to the temples and back of the neck. But such cases, it should be kept in mind, are not common, and this mode of depletion is not to be often resorted to. *Cold affusion* may be of advantage when the face is flushed and the skin hot and dry; under opposite circumstances I would not advise it. *Emetics* have been highly eulogized, but they are of doubtful effect. When the stomach is nauseated, with retching and ineffectual vomiting, with foul tongue and fetid breath, they may do service. They may also be occasionally employed to arouse the susceptibility to the action of other remedies, when we have found ordinary doses incapable of affecting the patient. *Cathartics* are often beneficial. Calomel, in large doses, is the best. The saline may be added, if the patient be strong and robust. In general, however, it is not advisable to employ cathartics freely. *Opium* is, unquestionably, our most important remedy. It is applicable to all cases of Mania a Potu, and has only been subjected to doubt, by having been erroneously

prescribed, when the case has run into phrenitis of ordinary character. I prefer the *tincture*, and prescribe it with unyielding perseverance, in large doses, until the patient sleeps. I do not like to combine with it any other stimulant. Camphor and ether are the least objectionable, if an addition be necessary. Nor can I assent to the propriety of exhibiting large masses of solid opium, which may not dissolve at all when most needed, and may lie inactive in the stomach, until a period when its solution and consequent absorption and active influence may be productive of injury rather than benefit. Digitalis is proposed as a substitute for opium, and the tincture is administered in large doses, from one to three drachms, every four or six hours. Thus exhibited, I have seen it unquestionably useful.

The management of the patient is a matter of much importance. He should be kept under the most perfect control, by a sufficient number of resolute attendants, or, which is often better, by solitary confinement. His diet, if he will take any, may be nourishing and well seasoned. His convalescence must be carefully guarded. His mind must not be disturbed with care or business. Tonics may be of use to him, but all stimulants (except those already mentioned) must be positively refused.

The prophylaxis of Mania a Potu—the reformation of the drunkard, is a topic of infinite interest. The peculiar craving or longing after ardent spirit is, in the sot, the consequence of morbid condition of the stomach chiefly. To remedy this, it is proposed to combine the sulphuric acid with the accustomed drink, and the effect is said, in some cases at least, to be strikingly advantageous. By others, it is suggested to combine with the several forms of distilled liquors, the tart. antimon. or ipecac. or other emetic, in such amount as to nauseate long and vomit severely. These attempts may sometimes succeed; but, in general, they either totally fail or produce only a transient influence. Nothing is to be hoped from any measure short of perfect abstinence; nor is any thing to be feared from the abrupt enforcement of the injunction. I would scarcely allow, in any case, the use of a substituted stimulant; but if such an indulgence seemed necessary in a given instance, opium and camphor would suffice abundantly, and the dose being rapidly diminished, might soon be safely withheld.

APOPLEXY.

Apoplexy may be defined to consist in a loss or remarkable impairment of the power of motion, with insensibility and stupor. The patient cannot be roused, and gives little or no token of consciousness. The action of the heart is usually little disturbed at first, but soon becomes feeble, and after a time ceases. Respiration is performed with some labor and effort, and with stertor generally, the difficulty increasing as the circulation is more impeded.

Causes.—A predisposition to apoplexy is found in a full plethoric condition of body—habits of undue indulgence in the pleasures of the table and venereal gratifications—in mental excitability, liability to gusts of anger, and other violent emotions. Yet it is not the luxurious only who are thus predisposed; similar tendencies are often found in the ill-fed, badly nourished poor. As age advances, the predisposition seems to increase. It is commonly believed to be connected too with a particular form, of which "rotundity, corpulence, with thickness and shortness of the neck," is the description.

The *exciting causes* which affect the predisposed are numerous; all stimulants, a full meal, especially if the subject place himself soon after in the recumbent posture; insolation, vehement muscular exertions, ligatures round the neck, fits of passion, stooping down for any length of time—all circumstances in short, which either render active the cerebral circulation, determining to the brain, as the phrase is, or which impede the return of blood from the head. Apoplexy is said to be often connected with hypertrophy of the heart, and to follow the sudden disappearance of regular gout, and the suppression of accustomed evacuations.

Diagnosis.—Apoplexy resembles profound sleep, but the sleeper may be aroused; it is distinguished from syncope, in doubtful cases, by the respiration, which is almost always noisy and laborious—generally by the pulse also, which is full and slow, and the countenance, which is, in the majority of instances, flushed; from epilepsy, by the absence of distortion or convulsions; from asphyxia, by the previous history of the case, and in the same

manner from the torpor of extreme cold, which closely resembles it. It is very difficult to distinguish it from intoxication, and it is often most perfectly simulated by the hysteric paroxysm. There is also a sympathetic loss of sense and motion from gastric disorder, not easily separated from it.

The *prognosis* is generally unfavorable—perfect recovery from it is not frequent; hemiplegia is a very common result of the attack; there is a strong tendency to recurrence of the paroxysm. The best hope of restoration is in the young and temperate, subjects marked by no special bad habit, or other token of predisposition, and attacked under circumstances of transient influence, as from insolation. In the old, and infirm, and intemperate, the prospect is gloomy.

When one side is in any degree agitated, and the other remains motionless, we predict paralysis of the latter. If the pulse sink, the respiration becomes louder, with puffing of the cheeks, and relaxation of the sphincters occur, we expect a promptly fatal termination.

Autopsy.—The appearances vary somewhat, but in a vast majority of cases betoken impediment to the performance of the functions of the brain, or actual lesion of cerebral structure. 1. Hemorrhage is of frequent occurrence. Blood may be poured out upon the surface of the membranes, or within the ventricles, or in the very substance of the brain, with laceration. 2. Serum or sero-purulent fluid may be found in the ventricles or upon the membranes. 3. Turgescence of the cerebral vessels is rarely wanting in greater or less degree. Exceptions are however recorded, on good authority, in which none of the above marks of disease within the head were discovered.

Pathology.—Apoplexy is properly the abolition or suspension of the sensorial functions, occasioned by pressure on the brain. Mechanical pressure, as by fracture and depression of the skull, gives rise to a train of symptoms precisely the same. This pressure may be—1. Extravascular, i. e. from fluids poured out, blood, serum, &c.; or it may be—2. Intravascular, from mere fullness or turgid state of the cerebral vessels; which latter condition may disappear at the time of death, leaving no trace.

Treatment.—This must vary with the condition and circumstances of the patient, which in different cases will be strongly contrasted. Apoplexy has, in relation to these diversities, been divided into two forms, sanguineous and serous, meningeal and cerebral, entonic and atonic—phrases significant, and applied with some foundation in propriety. These modifications are explained by the constitutional peculiarities of the subject, by the nature of the cause which has affected him, by the degree of lesion of the brain, and the particular locality of the lesion.

1. A majority of the cases present the following symptoms. The pulse is full and strong, though slower than natural, the face is flushed or turgid, the eyes prominent, the pupils somewhat dilated, though not altogether insensible to the influence of light, the respiration stertorous, the surface is of natural temperature, the features flabby, and the jaw somewhat fallen. There have been for the most part, certain premonitory indications before the fit, such as flashing of light before the eyes, tinnitus and other noises within the ears, fullness or throbbing, or pain in the head and vertigo, with somnolency; and sometimes a failure of strength of the arm and leg of one side, or a sense of numbness in them or in the tongue, for paralysis may precede as well as follow apoplexy.

In this state of things, the *lancet* must be promptly used and fearlessly, and blood drawn from a large vein or veins, to an amount sufficient to make a definite impression upon the force of the circulation. *Cold affusion* on the head is useful, the hair being cut close or shaved. *Active cathartics* and enemata must be employed for their revulsive effect; the drastics will be chosen on account of the impaired susceptibility. *Counter-irritation* by sinapisms to the extremities, and epispastics, will be of service. *Emetics* are equivocal remedies, and should not be administered, unless when the patient has been attacked immediately after a full meal. The best means of promoting the certain recovery of the patient, and of confirming a cure thus begun, is to keep up a regular and free determination to the bowels, by the use of efficient purgatives in repeated doses.

2. The patient is sometimes pale or livid, with a cold moist skin, and a pulse feeble and intermittent. Here the *lancet* is for-

bidden. Cold water must be applied over the head, by affusion or with a sponge, and cups to the back of the neck and between the shoulders, or leeches behind the ears or around the anus. Volatiles should be held occasionally to the nostrils, and mustard laid upon the extremities and epigastrium. Stimulating enemata ought to be given without delay, and epispastics laid upon the spine and other parts of the surface. If the pulse rise under this treatment, we may bleed and administer purgatives.

PARALYSIS.

Under this head I shall notice several diseases, usually recognized as distinct. 1. *Hemiplegia*, or palsy of one side of the body, closely connected with our last subject, as being an affection of the brain, primarily, and always the result of pressure on some part of that organ. 2. *Paraplegia*, palsy of the lower part of the body, transversely divided; the result in a vast majority of cases of lesion in the spinal cord, though it has occurred independently of it. 3. *Paralysis agitans;* and 4. *Paralysis vacillans*, or Chorea Sancti Viti.

Apoplexy in its worst grade has been considered a complete and total paralysis, but there are degrees even in apoplectic seizure, and the various divisions above stated, are obviously forms of *partial paralysis.* We may have palsy of a single limb, nay, of a single muscle, or of a few muscles. In Colica pictonum, there is palsy of one or both hands. The arm has been palsied, while the hand, if supported, was capable of writing. A palsy of one side of the face is not very rare. The tongue is sometimes palsied. In what I have called P. agitans, there may be a constant trembling of the hand, or more frequently, an incessant shaking of the head. This is common with the aged, but I have met with it also in the young and robust. In apoplexy and hemiplegia, the brain is evidently the seat of injury. The mind is disturbed more or less, and both sensation and motion are impaired. In the three latter forms of paralysis, the mind usually remains unaffected and the sensibility of the parts is not changed, the nerves of motion having suffered exclusively. This may either result from some cause acting upon the nervous ramifica-

tions which supply the parts, or may depend upon lesion of the portion of spinal or cerebral substance from which these spring. Paraplegia, which in a great majority of instances arises from obvious injury or disease of the spine, has been ascribed in a few to cerebral derangement, and has occurred as a sympathetic effect of gastric and intestinal disorder, without any perceptible change in the condition either of the brain or spinal cord. In Chorea Sancti Viti, Paralysis vacillans—styled by some P. agitans, incorrectly—the tremor or agitation is not constant, but exhibits itself only at the moment when an effort is made at voluntary motion. The volition fails in part, and the muscles called upon act with vacillation and irregularity, but not feebly. There can be little doubt, I think, that the cerebellum, the organ of association of action, is here affected as well as the nerves, and when the case is severe and protracted, the whole brain may become disordered, the patient becomes fatuous, and there is tendency to convulsions.

1. Hemiplegia is nearly allied to apoplexy, which it may either precede or follow. As the consequence of the apoplectic seizure, it has already been spoken of. Its approach may often be observed and foretold. I have more than once marked in the apoplectic, the exact moment of its occurrence, denoted by a slight quivering of the muscles of the face, trunk and limbs, which in an instant relax and subside into a passive condition.

It often invades gradually. The patient first complains of a numbness and tingling of one arm and leg, is apt to trip or stumble, and to let fall what he attempts to hold; there is noise in the ears, and the eye of one side cannot be closely shut; there is some distortion of the mouth, and articulation is impeded. The mind is usually somewhat disturbed; the memory generally fails, though not invariably, and some terror attends the feeling of so great a calamity. When fully developed, hemiplegia implies an incapacity to stand or walk, or close or raise the hand; but the power of sensation and voluntary motion in the side affected, though greatly impaired, is seldom, if ever, totally lost, and in numerous cases the sensibility has remained, or been morbidly enhanced, while motion was impossible, and vice versa; in one remarkable instance, there was loss of power on one side while the feeling of that side continued, and loss of sensibility on the

other, the voluntary movements of which were not impaired. These facts are easily explained, since the discovery made by Sir C. Bell, of the independent origin of the two sets of nerves.

Sometimes the case runs rapidly on into apoplexy, occupying from a few hours to a few days, the prostration of muscular power increasing, and the mind becoming more and more disturbed, until insensibility and coma supervene.

Many patients, however, drag out a miserable, protracted existence of months and years of unabated suffering. The nutritive action of the vessels of the affected limbs is imperfect, they shrink and are emaciated, their natural heat being lessened—harshness and dryness of the surface ensues, the ordinary transpiration ceasing—the fingers are pale and waxen, and sometimes contracted; the countenance is distorted by the traction of the mouth to the sound side, the saliva escapes over the chin, the tongue is thick, and when protruded turns to the paralytic side, and the speech is confused and indistinct. There is sometimes severe pain, and sometimes spasmodic muscular contractions on the affected side. *Amnesia* is usually present in various degrees. The memory of words is oftener lost than the remembrance of things or facts. The names of familiar objects are sought for in vain, or incorrect names obstinately applied, and words pronounced by the tongue which the will had not contemplated. The emaciation and debility increase, until the patient sinks, worn out and exhausted by a long train of evils, in which every function has successively suffered.

In a few cases a gradual improvement takes place, and a restoration of some of the capacities for action and enjoyment, but such recoveries are rare. They are attended with formication and tingling of the limb, and sometimes painful swelling, while the power of motion increases slowly and the mind gains strength. According to my own observation, this recovery of motive power scarcely ever takes place except in the lower limb; the paralytic hand is very seldom restored in hemiplegia.

The *causes* of hemiplegia are those of apoplexy, already enumerated—plethora from luxury and excess among the rich, and the apparently contrasted though closely analogous condition arising from imperfect supply of food in the poor, insolation, and intemperance in drinking.

The *prognosis* is unfavorable. It is proved that absorption of extravasated blood, which by its presence in the brain has produced hemiplegia, may take place; but the process is slow and uncertain, and the constitution in the mean while sinks under the general impairment of function. Laceration and disorganization of the cerebral tissue hardly admit of restoration.

Autopsy.—The most common circumstance noted in the examination of hemiplegics, is the presence of a clot of blood in some part of the brain. It is usually, perhaps always, enveloped in a cyst, and has undergone more or less change from absorption. The process is slow; the clot has been found undiminished in size, and filling the cyst, two years after the attack. Sometimes the cyst is found empty, with its sides collapsed—at others, it contains serum. Tokens of inflammation of a portion of brain are found; there is induration of substance, *ramollissement* or softening, a change the nature of which is not well understood. Abscess or effusion of pus, of serum—various morbid growths, tumors and tubercular deposits, have been seen connected with the membranes.

The *pathology* of hemiplegia is readily deducible from what has been stated above. It is the result of pressure upon some part of the brain, and the degree and kind of effect are in relation to the locality and extent of the lesion which interrupts the sensorial function. The pressure on which it depends may be, though rarely, intravascular.

The *treatment* must be varied, as in apoplexy, to suit the condition of the patient. If he be young and robust, the pulse full and strong, the face flushed, with pain and throbbing of the head, he must be *bled* largely, and cold water poured upon the head from a height. *Purgatives* of active and irritating character must be promptly administered, and their effect hastened by the aid of enemata.

In the opposite state of the system, when the countenance is pale, the pulse feeble, the skin cold and moist, volatiles must be applied to the nostrils, sinapisms and epispastics to the limbs and trunk, and the head sponged with vinegar and water. Enemata may be given, and leeches or cups put to the temples and back of the neck. If reaction ensues, we should deplete, but with caution.

In the protracted state of hemiplegia, the persevering employment of purgatives has done service, and some of the cathartic mineral springs are celebrated for cures effected. Determination to the head must be combated by keeping the head shaved, and occasionally applying a few leeches behind the ears, or blistering the back of the neck or between the shoulders, or inserting an issue or a seton in the neighborhood. Farther revulsion is attempted by frictions with turpentine, mustard, &c. which are supposed to excite locally the enfeebled muscles and nerves. With the same view, the skin of the limbs affected is irritated with tartar emetic, rubbed with rough tow and hard brushes, stung with nettles, and burnt with moxa. Both the cold and hot baths are much eulogized. But the most useful means, in my hands, have been galvanism and electricity. The tonics are much employed, especially the metallic—the nitrate of silver, bismuth, zinc, arsenic. Strychnine has been of late highly recommended, and is supposed to possess specific and peculiar properties, which adapt it to the relief of the hemiplegic. I have also seen some advantage gained by the careful use of veratrine, both externally and internally employed. The difficulty of deglutition, which so much distresses some paralytics, was much relieved after friction with the ungt. veratri about the jaws and throat.

2. *Paraplegia* is one of the most obstinate and hopeless of human maladies. The spine should be carefully examined, and at any point exhibiting fullness or tenderness on pressure, leeches or cups should be repeatedly applied. The use of purgatives, and the employment of electricity and galvanism, furnish perhaps our most reasonable hopes of improvement.

3. *Paralysis agitans*, if in the old, is incurable. In the young, it is connected with various other derangements of health, and will require the treatment to be accordingly modified. In females, it seems dependent upon habitual constipation, and sometimes upon irregularity of the catamenia. Under both circumstances, I have succeeded in removing it by employing a combination of some resinous purgative with the rust of iron.

4. *Paralysis vacillans*, Chorea Sancti Viti, belongs generally to childhood and early life. It is produced sometimes by the irrita-

tion of worms. I have seen it arise during convalescence from other maladies, as scarlatina, catarrhal fever, &c. I knew it supervene upon the introduction of a needle into a part of the body, and after a duration of some months, suddenly cease on the needle finding its way out of a distant part. It often invades, however, without obvious cause. I have seldom failed to relieve it by the exhibition of iron, with an occasional purgative. Other tonics are used, as bark, sulph. quinine, and the cold bath. I have prescribed camphor and opium, in minute doses, with great advantage. In obstinate cases, I have seen the best effects follow from galvanism and electricity.

EPILEPSY.

This terrible disease is of paroxysmal and recurrent character, the patient usually enjoying good health in the interval, but liable to an occasional attack upon the application of exciting causes of great number and variety, and in bad cases spontaneously, or without the influence of any obvious cause. The paroxysm consists in a sudden loss of consciousness and sensibility, attended, when fully developed, by convulsive agitation of the body and limbs. *Convulsion* described as an alternate and rapid contraction and relaxation of the muscles of voluntary motion. There is much irregularity, both as to the muscles affected, and the force and quickness of their contraction.

In a fit or paroxysm of epilepsy, as ordinarily occurring, the patient falls, and is agitated with convulsions. The countenance is flushed or livid and horribly distorted, the head drawn forcibly backward, the eyes turned upward and inward, and the lids incessantly in motion. The mouth is rapidly opened and shut, with inarticulate sounds and moaning, expressive of great suffering; the tongue is mangled by the gnashing of the teeth, and the lips are covered with foam. The limbs are tossed violently or drawn together, with the hands tightly closed; the trunk is twisted to and fro, and the resistance of the sphincters being overcome by the contraction of the abdominal muscles, the contents of the bladder and rectum are evacuated. After a time these convulsions subside, and the patient lies passive, languid

and soporose; his intelligence gradually returns, or is at once recovered, after waking from this slumber, but there is no memory or consciousness of what has happened; great debility, and usually some headache, remain for a few hours.

Epileptics often receive a species of warning, which admonishes them of the approach of a fit. In some, this consists in the throbbing of the head, tinnitus, &c. which precede apoplexy. In others, there is an indescribable affection of one or more of the organs of sense, either smell, taste, or sight; to perceive a particular odor is not uncommon, and a patient of my own was always aware of what she denoted "a green taste" just before an attack. Others feel in some part of the body, a sensation usually spoken of as "cold creeping vapor," which originating there, moves upward towards the head. This is known as "the epileptic aura;" but the accounts given of it by different patients are dissimilar. Some speak of it as a titillation, others as severely painful, others as indifferent or but slightly uncomfortable.

The *paroxysm* of epilepsy is not always fully developed, as above described, the sensorial and muscular system being affected in various modes and degrees. There may be for a moment, or a very few moments, total unconsciousness—a mist, as it were, coming over the mind, while the muscles remain undisturbed. On the other hand, the intellect may be clear while the aura is felt, and the muscles, if not agitated, refuse to obey the will. One class of muscles may be exclusively and strongly contracted, which is spoken of as the tetanoid form of epilepsy; or the whole muscular system may become at once rigid and fixed in the mode and degree or state of action existing at the precise moment of seizure—a state well known as Catalepsy, and of which I have met with two well marked instances. All these varieties may, at different periods, exhibit themselves in the same individual case.

The *autopsy* of epileptics, discloses no uniform lesion or derangement. Many affections of the encephalon and spinal cord have been noted, but they are found in comparatively few subjects; and on the other hand, are often observed unconnected with epilepsy. Among them may be mentioned, ossific and other tumors attached to the inner table of the skull, and to the mem-

branes of the brain, and purulent and other effusions upon the surface of these membranes, and in the vertebral canal.

The *pathology* of epilepsy is extremely obscure and ill-understood. The nature of the intermittent disturbance of the sensorial system and function, upon which it depends, is absolutely unknown.

The *causes* of epilepsy are varied and numerous. The predisposition is transmitted hereditarily, and in certain families many of the members become its subjects. In persons thus predisposed, almost every derangement of any organ or function may become an efficient exciting cause. I would distinguish epilepsy, in reference to the first *notable* link in the chain of circumstances which give rise to it, into Idiopathic and Sympathic.

It is idiopathic when it occurs without obvious derangement of any other function than the sensorial, and when we can reasonbly refer it to some known agent, capable of directly impressing the sensorial system, as for example, mental emotion of many kinds, and the strong principle of imitation.

It is sympathic when, on the other hand, we trace the sensorial disorder to an indirect or secondary influence exerted upon the brain and nerves, through the diseased condition of some of the other organs or systems.

1. The digestive. Dentition and worms produce, by their irritation, many attacks of epileptic convulsion in young children. Intemperance is a frequent cause among adults, though it may be questioned whether, in this example, the primary impression be made upon the stomach or the brain. Hepatic disorder has been accused of bringing on epilepsy.

2. The genital. In women, epilepsy is often connected with derangement of sexual health. Masturbation will give rise to it, in both males and females. Venereal excesses have proved fatal by inducing epilepsy.

3. Metastatic epilepsies. Under this head I would include such as precede and follow the exanthemata—such as supervene upon the sudden disappearance of inflammations and the removal of tumors. I have more than once seen such convulsions follow the sudden disappearance of dropsical swellings.

4. Epilepsies connected with "the aura." This strange sensation has sometimes an obvious cause, in the condition of the part where it commences. The part is sometimes tender on pressure, and sometimes it invites pressure. Where no disease can be traced on examination, I am still disposed to believe there is a morbid local affection of the nerve distributed there.

The *prognosis*, in the first species, or idiopathic epilepsy, is unfavorable, except where it is clearly owing to some transient excitement of the feelings, or when it is founded on the instinct of imitation. In the sympathic, we distinguish the several forms. Attacks occasioned by the irritation of worms, or dentition, or even by intemperance, are for the most part readily curable, upon the removal of these transient causes. So also of those which I have termed metastatic, which are not usually obstinate. But epilepsies, arising from genital derangements, take promptly a tenacious character, and are difficult to expel; and in the modification specified under the fourth head, we have little room for hope, unless we can appreciate and remedy the disorder of the part primarily affected with *the aura*, or can detect and remove with the knife the diseased portion of the nerve—means of relief very rarely within our reach. In general, all the forms of epilepsy are difficult of cure, in proportion to their duration. Spontaneous cures of epilepsy occur now and then, but are not well understood. In almost all cases, it is in our power to render the paroxysms less frequent, and perhaps to diminish their violence. But few die in the paroxysm. It is affirmed to have brought on hemiplegia and apoplexy, and by repetition, to tend to reduce the patient into a state of idiocy and fatuity. Many epileptics, however, live long and enjoy unabated vigor and clearness of intellect.

Treatment.—During a fit, loosen all clothing about the neck and body—elevate the head, and sponge or wash it with cold water—place a soft bit of stick, or roll of cotton, between the teeth, to preserve the tongue from injury, and give the patient fresh air. The lancet may be of use, but is not often required. I would bleed if the patient was young and robust, of apoplectic make, with face flushed and turgid, and laboring under some strong excitement of transient nature.

Owing to the extreme obscurity of the pathology of epilepsy, and our total ignorance of the conditions upon which it immediately depends, our efforts for its removal, it must be confessed, are rather tentative than directed by scientific or definite indications. The practice in the case may therefore be considered, without impropriety, under the heads of the Palliative and Empirical.

The palliative management of the epileptic, is sometimes successful beyond our hopes; not only lessening the number of the attacks of convulsion, and subduing its violence, but even in some happy instances arresting the disease altogether. The diet should be strictly regulated—temperate though not abstemious, nourishing but not stimulating. The hair should be cut close, or even shaved off. If at any time the head throb or ache, or the face be flushed, venesection should be resorted to, or cups and leeches applied. Vigorous and constant exercise should be enjoined—studious and sedentary habits abandoned. The administration of cathartics is often beneficial; the most remarkable cure which I have ever seen, was effected by perseverance for years in the habitual employment of gentle purgatives. In sympathetic epilepsies, besides this general palliative course, we must endeavor to eradicate or remove the primary affection, wherever seated. A careful examination of the source of the *aura* should be instituted, with the view to the counteraction of its influence, in whatever method might be practicable.

The empirical treatment of this justly dreaded malady, consists in the administration of certain remedies, whose *modus operandi* in the case is totally unknown, but whose reputation is the result of tradition and experience simply. I have not succeeded with any of these anti-epileptics, though some of them are in high repute, and have been favorably reported of by physicians of name and authority. They are the nitrate of silver, the salts of zinc, of copper, and of arsenic, digitalis, and the mistletoe of the oak. Successful experiments have been also made with galvanism and electricity. These powerful agents, especially the former, would seem capable of advantageous application here, and deserve repeated trial from the profession.

NEURALGIA.

The physiology of the nervous system is too obscure to admit of a clear understanding of its morbid conditions. The very language which we use in treating of its pathology, is vague and indefinite. Thus Neuralgia is the term chosen to denote a painful affection of certain nerves, as if all pain were not essentially nervous; it is intended here, however, to exclude the idea of inflammation or structural lesion of the parts supplied by the diseased nerve or its ultimate expansion. Under this head, I propose to consider, briefly; three varieties of morbid affection, closely allied in nature, and analogous in symptoms and results. 1. Spinal irritation. 2. Tic douleureux. 3. Visceral neuralgia.

1. *Spinal irritation* must not be confounded with true Spinitis, to which however it may give rise. It has been accused as the obscure source of a long list of maladies, even intermittent fever having been ascribed to it. In ordinary cases, which are much more common in females than males, and in youth than advanced life, the patient complains at first of occasional uneasiness in the back and loins, is easily fatigued, indolent, and unwilling to walk, or stand, or sit erect. Then come on aching along the course of the crural and sciatic nerves, and a feeling of weariness in the lower limbs. The general health yields under the influence of this constant uneasiness, want of exercise and disturbed rest; and a long series of sympathetic affections ensue, terminating in hectic and atrophy, the digestive and genital systems suffering prominently.

2. *Tic douleureux* is a painful affection of the extreme expansion of some external nerve. Good makes three species—Faciei, Pedis, Mammæ—the first being most common. I have seen two instances of the second. The third is happily rare. Tic douleureux is paroxysmal, spontaneously recurrent—observing, though not very exactly, the law of periodicity; the pangs suffered during an attack are intense, and of singularly depressing character.

3. *Visceral neuralgia.*—This is also a paroxysmal and recurrent affection. The ganglionic system of nerves is the principal

(though perhaps not the exclusive) seat of suffering here, and the anguish of the wretched patient is indescribable. One of its most common forms is known as "nephritic colic;" the kidney, lower intestines, and testes, being assailed with pains of most "atrocious" intensity. All the viscera may be thus attacked. Gastralgia is probably often a gastric neuralgia. Dysmenorrhœa, usually a uterine neuralgia. Some of the varieties of headache are doubtless of the same character, and perhaps some of the cardiac and diaphragmatic affections, so obscure, and so full of pain and danger.

The *causes* of neuralgia are not clearly made out. Macculloch and others after him attribute it to malaria, but it is not more frequent in malarious districts than elsewhere. It is more plausibly alleged to be connected with previous dyspepsia, and sometimes with gout.

Treatment.—All forms of this disease are intractable and tenacious. We may generally relieve a paroxysm with the prompt and unhesitating administration of opium, or some of its preparations. The doses should be as large as the stomach will bear, and for quickness of effect, I prefer the solution, either of the drug entire, or of some of the salts of morphine. The warm bath will aid their action, and so it is asserted will the combination with them of camphor, musk, and assafœtida. In the intervals, guaiacum and colchicum are advised by some, while others rely upon the tonics, selecting arsenic and iron. While there is any tenderness upon pressure locally, either of any portion of the spine (which we should never omit to examine carefully) or any other part of the body, cups or leeches should be applied there, and counter-irritation assiduously attempted by sinapisms, blisters, and by the ammoniated lotion of Granville.

DISEASES OF THE MOTORY SYSTEM.

GOUT.

Podagra—Arthritis.—We have to consider gout, like scrofula, in a twofold point of view. It constitutes or depends upon a peculiar diathesis, of which its several local developments are the external manifestations. Regular attacks of gout, however, affect the joints exclusively, whence the propriety of the term Arthritis, and the arrangement of it here.

The gouty diathesis or constitution may be transmitted hereditarily, determining a predisposition to its local manifestations so strong that they cannot be escaped, the subject being attacked in childhood or early youth. In the generation of the diathesis, full or luxurious living is the most influential agent; this is much aided by habits of indolence and refinement. Climate has probably an effect in inducing this state of the system, as in Great Britain, where gout prevails as extensively among the upper classes of society, as scrofula among the lower.

The nature of this predisposition is not at all understood. It is usually connected with a state of plethora, and attended by a proverbial exemption from other forms of disease.

The *exciting causes* which tend to develope it and give rise to an arthritic paroxysm, are numerous and diversified. Intemperance—nay, a temperate use of stimulants, even a single glass of wine, will occasion it in the predisposed—so will any indigestible or stimulating food, fatigue, loss of sleep. Local injury of a joint, as a twist or strain of the ankle, is sometimes followed by a fit of gout.

Gout is divided into entonic and atonic—into regular, misplaced, and retrocedent. It is *entonic* when the local inflammation is attended with febrile excitement and increased force of vascular action. It is *atonic* when the pulse and strength are below the usual standard—when instead of febrile excitement and local pain, we have general uneasiness and disturbance, with little inflammation of a joint or limb. *Regular* gout attacks a joint

and is there fixed, the constitutional disorder being proportioned to the local affection, and disappearing as it abates. *Retrocedent* gout consists in a metastasis of such local affection from the joint first attacked to some one of the internal organs. *Misplaced* gout is said to occur, when, at or about the usual period of the recurrence of a paroxysm, or under the influence of the causes which tend to produce it, an arthritic subject becomes affected with much internal disorder.

The *pathology* of gout is confessedly obscure and uncertain. The prevailing opinion of the day, refers the symptoms in all their variety to disorder of the digestive system. In this view I do not concur. The nature of the diathesis, especially when hereditarily derived, is utterly unknown. The local inflammation is of peculiar character, and terminates only in resolution or deposition of earthy matter, never in effusion of pus or serum, or in gangrene.

The *diagnosis* of gout is easy in cases of long standing. A first fit may be mistaken for rheumatism. It is distinguished by its intensity, and its exclusive invasion of the smaller joints, very generally the ball of the great toe.

The *prognosis* in regular entonic gout is decidedly favorable. In atonic irregular attacks it is the reverse; these are often suddenly fatal, whether the stomach, the heart, or the brain be the part affected.

A *paroxysm* of regular gout begins with a swelling of the ball of the great toe, which is extremely tender to the touch, with great tension and redness of the skin, the veins being full and the arteries throbbing. The pain, which is insupportably severe, extends upward towards the ankle and calf of the leg, and is much increased on letting the foot hang. Motion is impossible. There is fever, with headache and uneasiness of stomach; the pain is described as very distinct and peculiar, and attended with a sense of numbness and paralysis of the part. The inflammation occasionally changes from one foot to the other, or extends to the knee. After a duration of a few days, these symptoms subside, leaving the patient in good health. At first the intervals are long, and the paroxysms do not recur for a year or six months, but by repetition their duration is lengthened and their frequency

increased, until the local inflammation becomes almost permanent, when we may have the deposition of urate and phosphate of lime, so characteristic of gout.

The symptoms of retrocedent and misplaced gout depend upon the organ attacked. When the viscera of the thorax and abdomen are affected, there appear the usual signs of gastritis, enteritis, pneumonia, &c. When the brain is the seat of the evil, it assumes rather the form of apoplexy than phrenitis; and when the heart is assailed, the case is angina pectoris, or perhaps more correctly a cardiac neuralgia.

When with these arthritic affections there co-exists an infirm, debilitated condition of the patient—atonic gout—the pulse is feeble and wavering, the skin cold and clammy, the pain intolerably oppressive, and described as spasmodic, with constriction of the chest or stomach. When these pains are transitory though severe, and shift from place to place, now assailing the trunk and now the limbs, now one organ or part, and now another, it is the "flying gout" of the books.

Treatment.—During the paroxysm. In young and robust subjects, and in the earlier attacks, it will be proper to resort to venesection; but not in the opposite class of cases. Purgatives are almost always useful and necessary. I prefer the combination of a resinous with a saline, adding some aromatic. Emetics are very seldom indicated; I would employ them when the stomach was loaded with a recent full meal, at the commencement of a fit. *Opiates* are much objected to by some, but in all prolonged paroxysms I am in the habit of prescribing the Dover's powder freely at night, and with excellent benefit.

The tincture of colchicum and *Eau medicinale*, maintained by many to be the same, are on the one hand highly eulogized, as not only safe, but admirably successful; while on the other, they are accused of fatal tendency. I have seen them both employed; there was some advantage gained, yet not much, and no evil resulted. Wilson's tincture, a celebrated secret remedy, perhaps a compound of colchicum and veratrum, is certainly possessed of remarkable power, and will often control and arrest the invading fit of gout.

Local management.—Leeches are generally serviceable; they diminish the pain, if they do not shorten the paroxysm. Some patients are relieved by a soft tepid poultice, while others derive comfort from cold astringent applications, as the solution of acetate of lead, sulph. zinci, &c. I have not seen the good effects promised from opiate frictions and blistering. Percussion and bandaging are recommended by Balfour and others, but my patients cannot bear the part thus handled. With regard to the cold bath, so much a subject of dispute, I would resort to it if, in a young and robust patient, after proper depletion, the pain and inflammation were obstinately prolonged. Under other circumstances I would consider it unsafe, and dread its giving rise to retrocedent or metastatic gout.

During the interval.—Temperance and exercise are the best prophylactics. The diet should be nourishing, but unstimulating. A threatened attack should be opposed by the use of laxatives and tonics. The tinct. guaiac. combines these properties; I have seen it often serviceable. The alkalies and bitters have enjoyed a high repute, but since the Portland powder lost its reputation, are not so much used as formerly.

The *irregular* forms of gout, the *misplaced* and *retrocedent*, must be treated on general principles. If atonic, the local affections will be highly inflammatory, and will require the prompt and free employment of the lancet, leeches or cups, purgatives, and blisters to or near the part assailed. If atonic, on the other hand, an immediate resort to opium and stimulants is necessary. The tinct. opii may be given in large doses, with ether and other diffusible stimuli, while we apply the quickest revulsives to relieve the affected organ—mustard, hot turpentine, moxa, &c.

RHEUMATISM.

This disease is especially interesting to the physician, from the frequency of its occurrence, the intensity of suffering which it often causes, and the readiness with which, in the majority of cases, these sufferings are relieved by proper management.

The division of rheumatism into acute and chronic, is familiarly and universally recognized; yet it is not easy to describe

clearly the distinctions which separate these varieties, nor even the points of similarity which connect them. In the first, the local affection is always painful and inflammatory, and is attended, for the most part, with fever of high excitement. In the second, the local affection is, generally, less intensely painful, and sometimes productive of no pain—the derangement consisting merely in the impairment of the capacity of moving or being moved, and the part thus affected often exhibits no external mark of inflammation, except a degree of swelling and consequent deformity in the first instance, with ultimate atrophy and entire paralysis. If fever be present, which is not usually the case in any obvious degree, it is of a low irritative type. There are, however, cases of chronic rheumatism, in which great pain is suffered by the patient, especially on motion of the diseased part; and others in which fever, although not constantly present, comes on with much general and vascular disturbance from time to time. Rheumatic inflammation chiefly attacks the larger joints, but may affect the smaller articulations also, and the fibrous tissue every where, and perhaps the cellular.

The predisposing *causes* are not well known, although it is evident that certain persons are much more susceptible of seizure than others. One attack renders the subject more liable to a second.

The exciting or occasional causes are more obvious; sudden alternations of temperature, and exposure to cold and moisture, are the chief. So clear is this connection, that a partial exposure will produce a local rheumatism, as in the familiar instance of stiff-neck, from sitting near a partially opened window or door.

The *diagnosis* of rheumatism is usually easy. It is not liable to be mistaken for any other disease than gout, the characteristics of which are well marked.

The *prognosis* in acute rheumatism is favorable; very few die of it, although fatal terminations have been met with, where the attack was specially violent in a feeble constitution, or the febrile excitement was protracted into the typhous state. The principal danger perhaps is found in the tendency to metastasis, the inflammation leaving the joint or other external part, and invading some of the internal organs, as the heart, the lungs, the diaphragm, &c.

The symptoms thus arising are urgent, and the patient, if not promptly relieved, sinks under his severe sufferings.

In chronic rheumatism the prospects are more gloomy. It is an affection of proverbial obstinacy, and in a large proportion of instances, adheres tenaciously.

Symptoms.—Acute rheumatism comes on with stiffness and pain in some one or more of the joints, or in some muscular part, soon attended with fever. The pain is severe, especially on motion, and the part becomes swollen and red, and tender on pressure ; the pulse is full, hard, and frequent; the skin harsh, hot and dry ; the tongue lightly furred. A nocturnal exacerbation of pain and general disorder occurs regularly, and in the morning an uncertain degree of remission. After a duration of 10 or 12 days, the pain and inflammation subside, and the fever disappears, the part affected remaining for some time after weak and easily hurt. Rheumatic inflammation seldom runs into suppuration ; in the joints it produces an effusion of synovia, which is afterwards absorbed readily. It is much disposed to shift its place, changing from one joint or muscle to another, and sometimes assailing the internal organs. I have seen it twice attack the heart. In one instance, an acute carditis was excited, which proved rapidly fatal; in the other, it gave rise to palpitations and hypertrophy, with dyspnœa, under which the patient finally sunk. The symptoms which are exhibited in these metastases, are usually such as appear in other acute inflammations of the organs invaded. Acute rheumatism chiefly affects young adults and middle aged persons. I have seen it, however, exquisitely developed in a child of three years, and in old people. Both sexes seem equally liable to it.

Treatment.—In the robust and strong it is well to employ the *lancet*, but this instrument has been used with great imprudence by many, in the hope to extinguish the disease at once. A certain degree of caution is required, or injury will ensue ; and although it is undoubtedly proper to relieve hyperæmia (if it exist) in the plethoric, and to reduce the vascular excitement which prevails by blood-letting ; yet it should be remembered, that there is something peculiar in the nature of the inflammatory affection, which refuses to yield to mere abstraction of blood ; and that this remedial measure, when carried too far, has changed a transient

or acute, into an obstinate chronic or passive rheumatism. *Purgatives* are undoubtedly useful. I employ the saline, in the first stages alone; as the case progresses, in combination with diaphoretics.

Diaphoretics, indeed, have been regarded as specifically adapted to the management of rheumatism. The antimonials are much prescribed. The colchicum is highly recommended here, as in gout. It is said to combine, when given in proper doses, a purgative with a diaphoretic effect, and is much depended on by many practitioners. I make much use of serpentaria—at first, with enough of the Epsom salt in solution, to operate freely upon the bowels—afterwards, with some form of opiate. The *Dover's powder* is invaluably beneficial, when the earlier violence of excitement has been subdued by the lancet and cathartics, and in large doses will often remove promptly all traces of the disease. In protracted cases, the acetate of ammonia, with camphor and opium, is highly efficacious; sulphur is also well adapted to relieve. In combination with these, we may frequently administer infus. cinchonæ with striking advantage. The mercurials, so warmly eulogized by some late writers, do not seem to be required in simple rheumatism, but become necessary when there is any complication with visceral disorder, or with syphilis.

The local management of rheumatism deserves attention. Leeches or cups should be applied, and the flow of blood kept up by warm fomentations or soft poultices, which will relax and relieve irritation and tension; at a later stage of the attack, sinapisms may be applied, and embrocations of a volatile or stimulating nature made use of. The vapor bath is serviceable. I mention, only to disapprove of, cold applications.

Chronic rheumatism is a state of disease, difficult to describe. It may be the result of an intractable attack of the acute variety. There is a subsidence of fever, and of general excitement; the appetite and strength of the patient are in a great measure restored; and the appearances of local inflammation diminish or disappear, with the exception of the swelling, which continues or may increase, the joint being incapable of motion. In general, there is no acuteness of pain, but the part is ill at ease, and some cases are attended with excruciating sufferings, which no lapse

of time subdues, and in others, fever persists of the low irritative type. The muscles which move the affected limbs emaciate—the joints become large, hard, stiff and misshapen, with a pale and waxen hue of the skin covering them. Chronic rheumatism, when not the consequence of the acute form, is said to select usually women and feeble men; but the most remarkable instance of it which I have ever met with, was in a stout and robust man, a physician, in the prime of life, healthy and athletic. The case is worthy of description, as exhibiting very strongly the characteristic peculiarities of chronic rheumatism. The subject of it was sent for on a warm night in autumn, to see a patient some miles from home; he rode hastily thither, prescribed, and then, bathed in perspiration, lay down to sleep under a window in a strong current of air. On awaking, he found himself incapable of moving without severe distress, every limb and joint being stiff and sore. A brother practitioner being called, bled him 40 ounces, from which time he had no pain. He was still unable to move, and in a few hours after was bled 20 ounces more. He never recovered the use of his hands, but was able to walk slowly and feebly. His joints were swollen, pale and stiff—he emaciated gradually—his fingers were slightly bent, and had the appearance of waxen preparations. His appetite and digestion were good, and he had no obvious febrile exacerbations, though his nights were often restless and uncomfortable. In this state of helplessness he remained some years, with a clear intellect and cheerful spirit. Having removed to a distance, I know not the manner of his death.

Lumbago and Sciatica are two forms of chronic rheumatism, well known and of frequent occurrence in the aged. In these affections of the hip and loins, there is usually much pain and incapacity for motion, but with little fever or general disorder. Some have doubted whether they are correctly to be considered as rheumatic,. and have regarded them as affections of the large nervous trunks; but it is difficult, if not impossible, to draw such lines of distinction as are here aimed at; for many cases of painful affection of distant joints, with swelling, readily recognized as chronic rheumatism of ordinary character, seem connected with or dependent on affections of the nervous trunks, and are

relieved by cupping or leeching the part of the spine whence they arise.

Treatment.—In chronic rheumatism I would advise an avoidance of the lancet. The stimulating diaphoretics are our best remedies—guaiacum, camphor, ammonia and opium. Stimulants alone are much employed, and sometimes with good effect. The tinct. cantharid., turpentine, savin, and balsam copaiva, are strongly eulogized. Sulphur is often beneficial, and in feeble subjects may be well combined with infus. cinchon. and serpentaria. The Colchicum autumnale is supposed to be well adapted here also. The Phytolacca decandra is thought to be similarly useful. The Lisbon diet drink is a formula much employed, and combines some of our best diaphoretics. Experiments have been successfully made with the prussic acid, in very obstinate cases. Endermic medication, by vapor baths, fumigations of sulphurous acid, chlorine, phosphorus, ether, has been much in vogue. The natural hot baths have effected numerous cures in our own country; the springs of mountainous Virginia, and of Buncombe, in North Carolina, are much resorted to, and hot and sulphurous waters are drunk with remarkable benefit.

Local applications have not been neglected, and the number and variety of those recommended at different times, and by different persons, for the cure of this very obstinate disease, are great. Leeches and cups are used occasionally with great advantage. To Dr. Mitchell, of Philadelphia, we owe the suggestion of the preference due to the spine, as the place of application—at the part whence arise the nerves supplying the joint affected. Epispastics, the pustular irritation of tart. antimon., moxibustion, the persevering employment of strong friction over, and forcible motion of the stiff articulation, have all restored patients. Acupuncture has often given striking relief, and so have electricity and galvanism.

The diet, during the protracted existence of chronic rheumatism, should be nourishing and generous. Motion of the stiffened limb should be resolutely and frequently attempted. If there be any obvious susceptibility to cold, it will be a useful precaution to envelope the trunk and limbs in flannel, or even to apply to the latter the flannel roller-bandage.

DISEASES OF THE EXCERNENT SYSTEM.

Of all the *classes* of the physiological nosologists, this has been found most difficult to delineate and circumscribe. The business of excretion seems to be divided among many of the organs, which assist incidentally in its performance, while engaged in their peculiar function. Thus the lungs, the liver, and the intestines throw off much effete matter, while busied in digestion, absorption, and assimilation. The kidneys are, perhaps, the only organs exclusively excretory; we know of no other function in which they are employed than mere elimination. Next to them, the skin perhaps deserves to be considered in this point of view.

Excretion is the most important office of the cutaneous integument, although by no means the only one.

The diseases which affect this extended surface are numerous, diversified, and often highly severe; they are of frequent occurrence, and in every respect deserve our particular attention.

Among the chief of the maladies in which the skin is especially implicated, are the Exanthemata or eruptive fevers—a group of diseases so called, from the fact, that a cutaneous eruption, preceded or attended by fever, forms the prominent point in their history. Under this head are included Variola, Rubeola, Scarlatina, Dengue, Varicella and Vaccine.

The first four combine many circumstances of close analogy. A certain febrile disorder with notable gastric derangement precedes, by a pretty regular interval, a specific cutaneous eruption of definite character. The period at which this characteristic eruption makes its appearance, though subject to occasional and slight modifications, is well known; it is transient in its duration, running a limited course, and then declining and passing away. Small pox throws forth its eruption on the third day from the invasion of the disease—arrives at its height on the tenth, and then declines. The rubeolous eruption appears on the fourth, and declines after the seventh. Scarlatina shows itself on the surface on the second, and fades from the fifth. Dengue produces its eruption on the third, and disappears after the sixth.

They are contagious always, and often become epidemic also. They affect the human constitution but once—a rule which, however, is proved to be subject to occasional exceptions.

In the instances of small pox, measles and dengue, the gastric disorder is notably diminished as soon as the eruption has appeared upon the skin; in scarlatina this relief is less observable.

The *pathology* of the exanthemata is specially obscure, although there is no want of theory or hypothesis on the subject. The nature of the connection, so uniform and essential, between irritation of the mucous membrane of the respiratory and digestive apparatus, and inflammation of the skin of varied appearance and character, is entirely unknown. It is very common to represent the cutaneous affection as a *metastasis* of diseased action from the mucous tissue, which is assumed to be the seat of primary irritation, and first assailed, but this is incorrect. The mucous surface is not always, if ever, restored to a healthy condition at the time of the eruption; but the nature of the diseased action is altered. It is now affected similarly with the skin, and continues to be so until the latter is restored to health. In small pox, pustules form upon it; in measles, the red patches are first seen on the palate; in scarlatina, the tongue, throat and gastric surface, are last to lose their extreme susceptibility to painful impressions, their heightened color and obvious inflammatory condition.

The whole mass of fluids seems to be, in some manner, vitiated in these eruptive fevers, of which the best proof is found in the fact that they are conveyed to the fœtus *in utero*, when the pregnant mother is attacked. Such instances happen not unfrequently in variola, and, although more rarely, in measles also.

VARIOLA.

Small pox.—A well known contagious, eruptive, inflammatory disease. It has been supposed to be indistinctly mentioned in ancient writings, as prevailing among the Easterns, but we have no definite description of it until the 6th century.

Small pox is usually treated of under the separate heads of Distinct and Confluent; which terms, however, refer not to any specific difference, but merely to the degrees of violence of the attack, with the amount and extent of the attendant eruption.

Variola commences, like the inflammatory fevers, with a rigor or shivering, followed by heat, pains in the head, back and limbs, gastric oppression, nausea and often vomiting, restlessness, anxiety, and muscular debility. Sometimes there is soreness of the throat, with pain in the side and chest, cough and dyspnœa. In young children the invasion is not unfrequently marked by convulsions. These symptoms continue for three days; on the fourth usually, (it may be twenty-four hours sooner or later,) the skin of the face and breast exhibits an eruption, consisting of small papulæ, slightly projecting and of red color, which afterwards spread over the arms and the rest of the surface. From the time of its appearance, the febrile symptoms decline, and in a great measure subside. These pimples or papulæ assume in a day or two the vesicular form, becoming distended with a thin serous fluid; they increase in number and size, and on or about the seventh and eighth are of a circular shape, with a depression in the centre, of the great majority. On the ninth and tenth, the contained fluid is turbid and purulent. In proportion as these pustules abound, the case is distinct or confluent. In the latter form of small pox, they often run together, so as to make a complete mask for the faee, and on certain parts of the body, those for instance which lie always in contact with the bed, run into large patches and crusts. Where they are not in contact, the skin between and around them is inflamed, red, and elevated. There is ophthalmia, and the face and eye-lids are swollen, the mouth and throat are sore, and the patient spits largely a tenacious saliva. About the eleventh day, there is an abatement of the inflammation, both pustular and cutaneous. The pustules, or many of them, crack, and the contained fluid oozes out; they flatten, and by the fourteenth have begun to dry and condense into a hard crust. From the twentieth, these crusts fall off, leaving in a great majority of cases, a permanent depression or pit in the skin.

The case may thus terminate without farther danger or inconvenience, and such is the history of a mild or distinct attack; but when the pustules are very numerous or confluent, we may have them spreading over and destroying the eye, extending into the throat and trachea, occasioning suffocation or severe pulmonary inflammation, and in such instances a secondary fever arises, de-

pending, probably, on the great degree of constitutional irritation, occasioned by so extensive and violent an inflammation of the mucous and cutaneous surfaces. This secondary fever invades at variable periods, from the eighth to the eleventh day. The tongue and mouth become dry; the pulse is very frequent and rather tense, but often feeble; the breathing is difficult; drowsiness comes on, increasing into coma, and the patient sinks exhausted with intolerable sufferings.

The *prognosis* is favorable in distinct small pox; in the confluent form it is the reverse. Bad cases may be known from the first, by an imperfect eruption, the vesicles rising very little, being rather livid than florid, and filling, or as the phrase is, maturating badly. If at any time the pustules flatten, and the skin becomes pale or livid, the danger is great, especially if the pulse and strength fail, and the mind is observed to wander. The occurrence of any urgent internal determination is to be dreaded, whether to the brain, as shown by delirium, coma, &c. or to the respiratory organs, with pain in the side or chest, cough and dyspnœa.

The sequelæ of small pox are often very serious. Deformity and blindness, with sometimes a permanent ophthalmia, a chronic diarrhœa, anasarca, occasionally follow it. The voice is in some permanently changed, and rendered disagreeable, by injury done to the soft palate. Scrofula is said to be excited to severe and rapid development, and the predisposition to pulmonary disease generally, but more especially tubercular or scrofulous phthisis.

Autopsy.—The variolous eruption is found not only on the skin, the vascular network of *rete mucosum* being the seat of the pustules, but extends to the mucous tissue lining the mouth, fauces, pharynx, trachea, larynx, and rectum, and upon the conjunctiva. The structure and formation of the pustule in these positions, is not well made out. In the cutaneous integument it is multicellular. The *pit* is occasioned by the sloughing of a circular portion of the *cutis vera.*

In many subjects the brain and its membranes are found dark with vascular congestion. In others the lungs are engorged and hepatized, and the pleura inflamed.

Treatment.—During the eruptive fever of small pox, if we are aware of the nature of the case, there is little temptation to

interfere, when the attack is mild. I know not that there is any risk or evil, in the ordinary management of fever of equal intensity applied here. If at the time of access there are exhibited determinations to the head, lungs, stomach, &c., violent and severe, the lancet may be used, and its effect aided by mild purgatives. The mercurials are supposed to exert here a peculiar efficacy, but of this I am not satisfied. Great gastric oppression, with foul tongue and fetid breath, require an emetic, especially if the retching be insufficient, and fail to empty the stomach of its crude contents and morbid secretions. Mild emesis can scarcely do harm, and is serviceable besides, by favoring a centrifugal determination of the fluids. It often relieves the infantile convulsions which precede the eruption.

The purgatives which I have advised to be used with moderation during the eruptive fever, must be abstained from when the papulæ are forming upon the skin; after this, the bowels should be kept free by laxative enemata.

The use of the warm bath, should be one of our earliest measures in the management of negroes and of whites of the lower class. It is beneficial to children attacked with convulsions, who may be relieved with the lancet cautiously employed, if the pulse be full and hard and the face flushed; and on the other hand, if pale and feeble, may be tranquillized with small doses of the tinct. op. camph. The apartment of the sick should be well aired, and perfectly clean. He should lie on a firm mattrass, and if able, sit up occasionally. The cool regimen, so vastly preferable to the heating system, anciently in vogue, must not, however, be carried to an extreme. It will, if urged, do harm, when the pulmonary symptoms are prominent. Nor do our negroes, in general, bear it well, unless much modified.

Light mucilaginous drinks should form the only nourishment. The sore-throat should be gargled often with tepid water, and the inflamed eyes washed from time to time with milk and other mild collyria, and carefully protected from light and other irritants.

To prevent the pitting, so much feared, many expedients are proposed. I have not confidence in any one of them. The resort to them in confluent and really severe cases is trifling, and in distinct small pox there is little deformity left.

In the secondary fever, most advantage is derived from the mildly stimulating diaphoretics, as the infus. rad. serp., with slight additions of ether, camphor, or ammonia. I employ *opium* unhesitatingly and freely, when it is required to relieve the cough, dyspnœa, restlessness, and other sufferings of the patient. It does not seem contra-indicated by any circumstances but those which show a tendency to coma. I prescribe the Dover's powder or the camphorated tincture.

In protracted cases, when the strength yields, cinchona is of much service. The infusion may be combined with other remedies. Extensive crusts are rubbed off occasionally by the motions of the patient in bed, leaving painful sores. These must be dusted with cinchona or finely powdered chalk, the pressure of the body frequently changed by the attendants, and extreme cleanliness inculcated.

If the "striking in" of the eruption, as the phrase is, occur, the pustules flatten and become indistinct, with failing pulse, and cold and livid surface, it is necessary to stimulate promptly and energetically, both by internal and external means.

The treatment of the convalescent requires much attention. He is covered with a new and highly susceptible integument, and is specially liable to the ill effects of exposure and alternations, from which he must be guarded strictly by proper clothing. His diet should, for a long time, be plain and unstimulating, though nutritious.

Variolous contagion is both *palpable* and *impalpable*. It may be communicated palpably by contact with the diseased person or with fomites, and by inoculation, or the direct insertion of small pox matter into a wound. It is also capable of diffusing itself impalpably through the atmosphere. At what stage of the case a sick body becomes thus a focus of contagion, is not clearly known—perhaps from the seventh day, when a peculiar odor or effluvium begins to be given off.

The *latent period*, the interval between infection and invasion, is also doubtful; it is usually rated at from nine to fourteen days. The effects of inoculation show themselves earlier—about the fourth day.

Small pox attacks the same person but once—a rule clear and positive, though not without exceptions. This exemption gave

great importance to the practice of *inoculation*, which enabled the subject to select his own time and circumstances for suffering the disease. It is difficult to account for the immense difference in violence and mortality between the casual and inoculated small pox.

Variola is liable to many modifications in history and character, some of which have been pointed out and separated in common language by special denominations, while the strong similarity which they present to each other and to the common stock of all, is indicated in the use of a word now become familiar every where, *varioloid.*

All the old writers speak of irregular forms of small pox. Sydenham is particular in detailing the varieties which the disease offered, in the several years of its epidemic occurrence under his own notice. Lieutaud speaks of a "spurious small pox," occasionally taken for the legitimate. Parr tells us that "the varieties of small pox are numerous." Others tell us of water-pock, of wind-pock, stone-pock, &c. in almost unnumbered diversity. It was only among the English, and not by them until the time of Heberden, that varicella (chicken pox) was distinguished from small pox.* Morton, of the time of Sydenham, speaks of it as mild small pox. His cotemporary must so have regarded it, if he met with it at all. And though Heberden, Willan, Rayer and McIntosh talk very positively of the distinctions between the two, yet other writers have not been able to mark them so clearly. Thomson, for instance, maintains varicella, in all its varieties, to be a modified small pox, and while Willan recognizes it only as presented in the serous or vesiculous form, Rayer acknowledges, that it occasionally assumes a pustulous condition. With regard to the grade, which is made the source of distinction between distinct and confluent small pox, it should be remembered, that Ring has given us a case of confluent chicken pox, and that McIntosh has recorded two fatal cases, one in a child, the other in an adult. Heberden speaks of a malignant sort of chicken pox, in which "the continuance of the pain and fever, after the

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* That is, by the profession: nurses and common people had noted and named these varieties at least half a century before.

eruption, and the degree of both these, though there be not above twenty pustules, are, as far as I have seen, what never happens in the small pox." Chicken pox has been known to pit the skin, and distinct small pox often fails to do this. If we receive the diagnosis of McIntosh and others, who discern chicken pox by the succession of crops and pustules, what shall we say to Heberden's acknowledgment of his having seen four cases of its unequivocal occurrence in small pox? These are "the only instances," he says, and his language is striking, "which have happened to me, something like what is *often talked of*—a second crop.

It seems to me that the above observations, in making which I have referred in preference to the older writers, exhibit plainly enough the difficulty of distinguishing small pox from its kindred affections, if their actual identity be not established. The term *varioloid* is a new one, first used by Thomson, in his "Account of the Varioloid epidemic," which prevailed at Edinburgh, in 1811. Cross gives an excellent history of a similar epidemic, (which, however, he terms small pox,) as occurring at Norwich. The same pestilence, it is asserted, raged about the same time in France, Italy, and Germany, from which last source it was brought into America in 1818, making its first invasion in Baltimore, (Md.) and Lancaster, (Penn.) It was first noticed in Charleston in January, 1824.

Varioloid has been assumed to differ essentially from variola, (small pox,) because first—it affects persons known to have previously passed through attacks of regular small pox; secondly, it affects persons previously vaccinated; and thirdly, it presents certain peculiarities of history and character, which serve as distinguishing marks.

The first of these alleged reasons is obviously of no force. It was long since observed, that small pox sometimes failed to destroy the liability to its own recurrence, and instances of its repetition are to be found in all the old writers. "Petrus Borellus," says Heberden, "records the case of a woman who had this distemper seven times, and catching it again, died of the eighth attack." Dr. Oppert of Berlin, relates the case of a girl, who, at six years of age, had confluent small pox. Seventeen years after, she was again attacked, and died of the disease. A similar

case is authentically stated to have occurred in this city. If it is replied that these cases are too few in number, to affect the general rule, that small pox invades the constitution but once, we readily acknowledge the correctness of the assertion, and proceed to apply the inference to the case before us. During the prevalence of the epidemic of 1823–24, in Philadelphia, (call it varioloid or small pox,) but sixteen persons are reported, by Drs. Bell and Mitchell, as attacked with it, who had previously small pox. A similar list may be made out of cases of the same kind occurring here, while the pestilence prevailed among us, so limited in number however, as to prove most conclusively, that *variola protects, at least in a certain degree, from varioloid disease.*

With regard to the second point mentioned above, it is only necessary to observe, that no well informed physician of the present day, retains any confidence in the absolute *preventive* power of vaccine against the invasion of small pox, however much he may be disposed to confide in its unfailing *modifying* influence. But of this, more hereafter.

Thirdly, the principal peculiarities which are supposed to characterize the varioloid, and to offer specific marks by which we may discern it, are, so far as we have been able to collect, the following :

First, the eruption comes forth in successive crops.

Secondly, the pocks or pustules, when formed, are conoidal, without a central depression.

Thirdly, they are vesicular, and not multicellular, as small pox.

Fourthly, they are smaller than the variolous.

Fifthly, they contain lymph and not purulent matter.

Sixthly, they dry and fall off without pitting.

Seventhly, their progress and maturation are unattended with secondary fever.

To all these we would rejoin, that the circumstances above described are by no means regular or connected in their occurrence ; and that if they were, they would not imply sufficient distinctness to constitute a separate form of disease. For,

First, in the small pox, the eruption is sometimes incomplete at first, the pustules appearing to thicken as the disease progresses ; and it is well known to all nurses, to be easy to increase, locally,

the number of pocks, by exposure of part of the body to long continued heat, as by lying on it, wrapping it, or exposing it to the heat of a fire.

Secondly, thirdly, and fourthly, the size and configuration of the pustules, vary much in the most clearly defined cases of small pox. Upon the same individual, some will be seen large, and others small—some conoidal, and others depressed in the centre. The internal construction of the pustules, will be found to differ in a corresponding manner; the conoidal are vesicular—those which present the depression in the centre are, like the vaccine, multicellular, that is, divided into many separate cells or spaces. If we have not grossly deceived ourselves on many occasions, we have further noted that the pock changed its appearance in this regard during its progress; at first vesicular and conoidal, it exhibited afterwards a depression at the apex, becoming flattened and multicellular. But upon this, as it is by no means important to the argument, we shall lay no further stress, content if we can draw the attention of the profession to it by our remark.

Fifthly, as to the assertion, so often repeated, that it is characteristic of the varioloid vesicle to contain lymph or serum, and not pus or matter, as the common phrase is, I affirm on the other hand, that the small pox virus is limpid and colorless. The most experienced inoculators, as for example, Parr and the two Suttons, always preferred clear transparent lymph. It is in the latter stages of the pock, after common inflammation supervened upon that which is specific and peculiar, that we find purulent matter; and the few cases of varioloid or modified small pox, which run on into this stage, exhibit just as distinctly the formation of pus. If the inflammation of the skin be stopped at an early stage, we prevent this; and such, as I shall hereafter show, is the most important of the train of effects attributed to the vaccine.

Sixthly, John Hunter has somewhere declared, that in each pock of the variolous eruption, a slough of the *cutis vera* takes place, answering in dimensions to the size and form of the pustules. This sloughing forms the pit or depression left by small pox, and the circumstance is assumed by him and others—Ring, for example, and Dr. Adams—to be peculiar to and diagnostic of small pox, and to depend, not upon the intensity of the inflamma-

tion, but on its specific nature. Thus they propose to separate varicella or chicken pox, from variola or small pox. It is easy, however, to demonstrate the fallaciousness of this test, supported as it is by the authority of such high names. A pit is not made by every small pox pustule.* In distinct small pox, and in inoculated persons, there is frequently left no mark or trace of the location of a pock. Nor can it be doubted, that the chicken pox and the (so called) varioloid, occasionally, though seldom, produce similar sloughs or depressions, and so leave marks on the faces of those who have gone through an attack.

Seventhly, secondary fever is often wanting in the mild cases of distinct small pox, and very rarely occurs in the inoculated. Dr. Parr indeed mentions the absence of it as a peculiar character of inoculated small pox. It is clear, then, that no inference can be drawn from its absence, of a nature favorable to our opponents. It arises like the secretion of pus from the irritation of the cutaneous surface, and is proportioned in degree to that irritation. It is, therefore, met with now and then, both in varicella and varioloid.

I believe varioloid to be identical in nature with small pox, because they are promiscuously capable of producing each other. The modifications which have been noted and discussed, I attribute in a vast majority of the instances presenting themselves at the present day, to the influence of vaccine, of which I shall speak presently. In others, (for they are confessedly irregular,) to certain indefinable and varied peculiarities of constitution, or habit, or condition of body in the affected subject.

Under this head of varioloid, I unhesitatingly coincide with Dr. Thomson in comprising varicella, (chicken pox.) This gentleman entered upon the course of observations, upon the Edinburgh epidemic, made by him with so much care and nicety, a thorough believer in the opinions of Heberden and Willan, with regard to the separate and independent nature of chicken pox.

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* Goethe, when a child, at Frankfort, was attacked by small pox there—long ill—but had the good fortune to escape without being disfigured.

Mary, Queen of Scots, so remarkable for her exquisitely fascinating beauty, had the small pox in her early childhood—but, says Bell, "It must have been of a particular gentle kind, having left behind no visible trace."

His candor, however, did not long permit him to remain the advocate of this view of the matter. "During the epidemic, I had occasion," he says, "to observe natural small pox, modified small pox, and the disease which I had been accustomed to regard as chicken pox, co-existing in the same situations, and appearing in their progress to produce one another. In three families in particular, situated at a considerable distance from one another, and between which, except through their medical attendants, no sort of intercourse had existed, my attention was strongly excited by observing chicken pox arise in unvaccinated children, from the contagion of malignant small pox. The occurrence of this event, in circumstances which left no room for doubt, because there appeared to be no possible source of fallacy in the observation, led me to conceive that all the various appearances of the epidemic, in the different classes of persons whom it attacked, might be produced by the operation of one and the same contagion."

Phenomena precisely similar have occurred under my own observation, in the several invasions of this eruptive disease, call it what you will. Such of my patients as had not been previously vaccinated, or had not had the small pox, exhibited for the most part the regular symptoms of variola, as it is found described in the books and recognized by the best authorities. Those, on the other hand, who had been protected by either of the above means, had the disease modified variously, and in different degrees of mildness—some of them scarcely, others not at all, distinguishable from varicella. That the same contagion is capable of producing these several forms of variolous disease, whether regular or in any manner modified, is not only proved by their occurring thus together spontaneously, or in the natural way, but has been definitely established by repeated inoculation with the matter of the modified vesicle, varioloid or varicelloid, in which regular well-marked small pox was the result of the insertion of the virus. Among such examples, the case of Dr. Hennen's son, of Edinburgh, is most worthy of being detailed. This boy, from whatever source infected, was seized with an eruptive disease, concerning which Dr. Thomson thus explicitly expresses himself:

"If I had been requested to point out the case, which seemed to me to correspond most accurately with the descriptions of

chicken pox, I should certainly have fixed upon the eruption of Dr. Hennen's boy." It was the circumstance of Dr. Hennen's viewing the disease in his son, as a well marked example of chicken pox, that led him to think of instituting the experiments which produced such interesting results. These results may be stated briefly, as follows: In four children inoculated from the above case, the disease was mild, and of short duration—varioloid or varicelloid; in two, it exhibited the appearance of small pox. In three men, who caught the infection from sleeping in the same rooms with these inoculated children, the disease was "uncommonly severe"—not to be distinguished from small pox; and in a fourth, under the same circumstances, "the mildest variety ever described of chicken pox."

Upon these grounds, then, I cannot help reprobating the introduction of a new term, the application of which is not only unnecessary, but calculated to confuse and lead into error. The modifications which have been assumed to constitute a separate disease, dignified with the specific appellation of varioloid, are each and all of them to be found described by the old writers, under various names. Thus we have from Dr. Huxham, "an Account of an anomalous form of Small Pox at Plymouth, in 1741." Thus we meet among the old writers with the phrases, horn pock, stone pock, water pock, wind pock, crystalline pock, swine pock, sheep pock, chicken pock, and numerous others, by which they intended to point out the undefined, but not uncommon varieties, which the variolous eruption occasionally assumed. I have already remarked that chicken pox was familiarly recognized as one of these varieties until the time of Heberden, who separated it under the name of Varicella or Variola pusilla, in which he was followed by Willan. I now add, that Dr. Bateman, closely as he was attached to Dr. Willan's views in general, found reason to doubt their correctness in this particular, as appears from an extract of a letter, written by him to Dr. Howitz, of Copenhagen, in which he says, "I am much inclined to concur with you in the supposition, that chicken pox is, in fact, modified small pox."

These varieties and irregularities formerly noted of variolous disease, arose from peculiarities of constitution probably, in some

instances; in others, from local or general condition of atmosphere, habits, manners, &c., and perhaps in most, from causes entirely unknown and unassignable.

To all these is now added, a more general and an uniform disturbing cause—the influence, namely, of the vaccine; and hence, at the present day, these variations and modifications are more regular, and better defined than they were of old, as well as infinitely more frequent.

Vaccinia, the vaccine, derives its origin from the cow, (*vacca.*) It was first made known to the medical profession in 1798, by the justly celebrated Dr. Jenner, whom we rank, unhesitatingly, among the greatest benefactors of the human race. The history of vaccine is an exemplification of the acuteness of the remark of Southey, in his Omniana, "that most things are known before they are discovered." Prela, physician to the Pope in 1825, contends, plausibly, from passages in Pliny and Celsus, that the vaccine was known to the ancients, under the name of *boa*. It had been long observed, in Gloucestershire and Dorsetshire, two of the dairy counties of England, that their cows were occasionally affected with a species of ulceration about the udder, which communicated to the hands of the milkers a pustular eruption.* The occurrence of this eruption was noticed to have conferred upon such persons a security against the casual infection of small pox, and such was the "general opinion," says Parr, "that the inoculator, who attempted to convey the small pox to one who had been thus previously affected with vaccine, was ridiculed." There was no difficulty in following up so plain a hint, and the artificial communication of this disease, as a preventive of variola,

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* It has been attempted to trace this affection of the udder of the cow to the *grease*, a disease familiar to grooms, as attacking the heels of horses—the same hands being employed, as is affirmed, in the stable and the dairy. Both are again derived from the small pox itself, the matter of which is argued to undergo, when brought into contact with these surfaces in the lower animals, the changes observed. I am not satisfied, however, either with the facts or the reasoning adduced on this head. I also regard as unworthy of notice, the assertions of Ozanam and others, concerning the conversion of variolous into vaccine matter, by simple mixture of milk from the cow. But I should be glad to have made, in our own country, some decisive experiments in respect to the transmission of small pox through the cow, by inoculation of the udder.

was tried first by a farmer of that country, and afterwards by Dr. Jenner, with the most satisfactory results. The early writings of the latter on this subject were received with scorn, and his papers refused publication among the Philosophical Transactions. It however forced its way into notice; the value of the discovery was, after vehement and angry debate, established on the most authentic basis, and the zeal of its promulgator amply rewarded by the British parliament. Since that time the vaccine has been extended all over the globe, and all nations of mankind have exulted in the benefits thus bestowed upon them. It was first introduced into this city by our highly esteemed historian and practitioner, Dr. David Ramsay. To the present time it has enjoyed the undoubting confidence of the profession, with scarcely a solitary exception, and at once superseded, and almost entirely suppressed, the practice of inoculation.

Vaccination is performed by introducing, under the cuticle, a small portion of lymph, taken from a vesicle about the eighth, ninth or tenth day, while yet the fluid distending the vesicle is transparent and colorless. The puncture remains unchanged until the third or fourth day, when slight elevation and inflammation are perceptible, which increase slowly. About the sixth, it assumes a regular circular form, with a depression in the centre. The vesicle is completely developed on the eighth or ninth day, and attains the average diameter of one-third of an inch. An areola now surrounds it of an intensely florid red color, and some febrile excitement of the system is perceptible, with stiffness, pain, and slight swelling under the arm, if the vaccination be performed about the usual spot, above the elbow. The diameter of the areola differs from one to two inches. It is attended with a degree of roughness, hardness and intumescence of the skin over which it spreads—circumstances which denote its existence and extent in the black. The vesicle is multicellular, that is, composed internally of numerous spaces or little cells, which communicate freely with each other. The fluid within these cells begins to dry away on the eleventh or twelfth day, having previously lost its transparency, and become milk or straw colored; the areola at the same time declines, and gradually disappears. About the twenty-sixth day, a hard round scab of mahogany

color, smooth on the outside and remarkably hollowed in the centre, falls off, leaving a permanent cicatrix or scar of peculiar and characteristic aspect—its surface being marked with minute pits or depressions, similar to those on the head of a thimble, "denoting," probably, "the number of cells of which the vesicle had been composed." It has been observed that, in variolous inoculation, the vesicle forming at the point of insertion has been attended by the eruption of others in different parts of the body; but as respects vaccine, it is a fact of very rare occurrence. Two such instances, however, have been communicated to me authentically.

I shall not attempt to describe any of the numerous deviations from the above history, which are to be met with in the irregularly diversified forms of what are called "spurious vesicles." Suffice it to say, that any striking or obvious departure from the ordinary phenomena, in the progress of a vaccine pustule, should make us cautious of confiding a patient to its protective influence. Vaccine, like every other disease, may undergo certain modifications from the condition of the recipient, an infinite majority of which are slight and unessential, not affecting its character and influence, nor impairing its genuineness. Others there are, however, though few in number, which change the nature of the specific action, either locally, or in its effect upon the system, and thus render it "spurious." Of the local modifying causes, the principal and most common is the mechanical irritation of the vaccinated spot, (as by rubbing,) by which a common inflammation is substituted for the specific, and a common sore produced. Erysipelatous inflammation may also supervene, and interfere with the formation of a regular vaccine pustule. Vaccine may, perhaps, be affected by or combine with some forms of constitutional disease, and thus take on a *hybrid* state. All cutaneous affections disturb the regularity of its progress, if they do not hinder the success of the operation, and no physician vaccinates as willingly from a pustule on the arm of a patient known to labor under scrofula, herpes, or lues venerea, &c. as from a healthy subject. There is a lurking doubt, in the mind of every one, however scornfully he may regard the humoral pathology,

whether he may not, by vaccinating from such a case, communicate a mongrel disease.

I am disposed to lay some stress upon the progress of maturation of the vesicle, although this may be slightly hastened or impeded, without detracting from the value of the pustule. Thus the temperature of the season, if high, may occasion it to anticipate twenty-four or thirty-six hours perhaps ; and severe cold on the contrary, by checking the cutaneous circulation, may retard it in an equal degree. The debility or robustness of the subject, may give rise to like results.

The pustule should be prominent and clearly defined, and the areola distinct and vivid. There should attend, some febrile disturbance of the general system. The appearance of the scar, as above described, I consider as of much importance. We should re-vaccinate when this peculiar appearance is wanting, and when the scar is smooth and resembles that of a burn.

I do not find the observation made by any writer, but I have certainly noticed the occurrence of a doubtful or spurious vesicle, to cause much difficulty in procuring, subsequently, the satisfactory results of vaccination in the production of a regular or genuine pustule.

Vaccination is, of course, best and most successfully performed with fluid lymph, taken immediately from the vesicle, but this simple mode of communication is not always possible. When required to be transported to a distance, or kept for any length of time, it may be preserved by various methods. The fluid is caught on a small plate of glass, which is pressed closely against another of similar size and shape, and the edges waxed, to prevent the access of air. We receive it on the points of quills, likewise protected from the air by envelopes. Cotton thread is dipped in it, and laid aside with equal care. But in the scab we have the most convenient means of preserving and transporting this invaluable agent. It has been kept for years, and found capable of communicating the genuine disease, just as when recent. It may be protected from the contact of air and moisture, by immersion in softened wax and spermaceti. It is scarcely necessary to remark, that the first scab alone possesses the specific vaccine

character; if this falls off, or is rubbed off too early, another may succeed it, but possesses none of its useful properties.*

Some have strenuously argued the propriety of recurring occasionally to the udder of the cow, the original source of vaccine, to ensure its genuineness, and renew it from time to time; but it may now be looked on as settled, that its primary and essential characteristics are unchanged and unimpaired, by any imaginable number of transmissions. Nay more, it is obviously improved by thus passing through the human system; it is so modified as to have become a milder malady, though not less effectual in its influence on the constitution. A person inoculated directly from the cow, always suffers more, much more it is said, than one who receives the infection from a human vesicle, and as far as has been ascertained, with no corresponding advantage to compensate.

Among the animals which have been found capable of receiving and communicating the vaccine, are the horse, the ass, the camel, the buffalo, the goat, the sheep, and the baboon.

It has been doubted whether variola does not exert a reciprocal influence upon the vaccine—whether it tends to prevent its introduction into the system, or in any manner or degree modifies it, and disturbs its regularity when so received. But the most positive proof has been obtained, of the transmission of perfect vaccine, through constitutions previously subjected to the variolous impression. It has been in this way brought across the Atlantic, by the successive vaccination of individuals, among the passengers and crew of the vessel, many of whom were known to have had the small pox.

Much has been said of the difficulty of communicating the disease more than once to the same constitution. Gregory, of the small pox hospital, declares that "it is impossible, or nearly so, to

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* It is difficult in this latitude, to preserve any form of vaccine matter, (even the scab not excepted,) through one of our summers. The heat and moisture of our climate, in the warm months, occasion it to undergo a deterioration or decomposition, which renders it unfit for use—at least, such has been the uniform result of numerous experiments, made with the greatest nicety and care. If we fail in transmitting the vaccine from one subject to another, in continuous succession, through the summer and autumn, we find ourselves under the necessity of obtaining a new supply from our more fortunate brethren elsewhere.

reproduce the vaccine in any thing like its genuine form, where the cicatrix left by a preceding pustule is perfect, and the result of a perfect vesicle." Dr. Darrach, of Philadelphia, in experimenting on this subject, found that the repeated insertion of the matter in the arms of vaccinated children occasioned a local disease, exactly similar to that produced by the first operation, with the exception that the pustule and scab were much diminished in size. In none of these cases could fever, or any other constitutional effect, be discovered. Unprotected children were, with complete success, vaccinated from one of these scabs not larger than a line, (one twelfth of an inch in diameter,) which was the result of a fourth insertion of the virus.

The duration of the influence of the vaccine—the permanency rather of the effect which it has wrought upon the system—has been denied by some who are staunch believers in its temporary power to destroy the susceptibility of the body to the invasion of small pox. But the mass of facts collected under this head, certainly goes to prove, that whatever may be the result of the vaccine inoculation—whatever the impressions made by it upon the organism—this result, these impressions, are not likely to be impaired or obliterated by any process of time, or any changes in the state of the system from any cause. Of two hundred and fifty cases collected by Dr. Gibson, "in which small pox is said to have occurred after vaccination, it appears that by far the greater number had been vaccinated less than two years." In Dr. Thomson's account of similar eruptions, they occurred at various intervals after vaccination, from a few days to fifteen years, not warranting, in any degree, the suspicion that the power of the vaccine is weakened or exhausted by time.

To ascertain the true influence of vaccine upon small pox, is an object of the utmost importance. I will, therefore, briefly and formally recapitulate the points fairly established, by a due consideration of the facts collected on every side.

First, Vaccination is no longer to be regarded as exhibiting the absolute power of preventing the access of small pox. In *some persons* it does seem completely to destroy the susceptibility to variolous contagion; *in all* it diminishes notably, though in different degrees, the liability to be infected.

Second, The introduction of the vaccine virus into the system in its genuine form, and in the proper manner, never fails to produce there such changes as to *modify certainly* the future influence of the variolous poison, if, under any circumstances, it should affect the constitution.

Thirdly, The *modification* thus asserted, does not appear to consist *essentially* in a diminution of the violence or duration of the first stage, the eruptive fever. This, though it is in general very slight, may be as severe as in casual small pox.

Fourthly, Nor does it appear to imply *essentially* a diminution of the quantity of eruption upon the skin, although the number of pustules is usually very limited in small pox after vaccination.

Fifthly, The great power of the vaccine unquestionably consists in modifying the *progress of inflammation* in the variolous eruption. Hence, the slighter degree of cutaneous irritation, which terminates in numerous instances without secretion of either lymph or pus—the less amount of matter formed in the pustules (when effusion does occur)—the sudden check given, in a majority of cases, to the suppurative process after it has commenced—the early disposition to rapid drying. Hence, the absence or transient duration of ophthalmia, which, with ulceration of the cornea and destruction of the eye, constitutes the worst and most unmanageable sequela of unmodified small pox. Hence, the rare occurrence of sloughing of the cutis, and consequent pitting, seaming and scarring of the skin. It has now become, happily, as unusual as it once was common, to see a person deformed with these marks of small pox. Hence, lastly, the infrequency of what is termed secondary fever, and its mildness when it does show itself. This is well known to be the most dangerous of the several stages of unmitigated small pox; it is tedious in duration, and leaves scarce one constitution in a thousand, without inflicting severe injury and permanent deterioration. The convalescence from small pox is, on this account, in the unprotected, notoriously slow. On the other hand, there is no convalescence more rapid or more perfect, than that of a patient who has been assailed after vaccination. He recovers both perfectly and promptly.

"Observe," says Dr. Gregory, "how strikingly opposed to (contrasted with) each other in this respect, are the influences of in-

oculation and vaccination. Inoculation lessens the quantity of eruption, but does not alter in the slightest degree the progress of inflammation in that which is thrown out. Vaccination on the other hand, while it does not (necessarily) affect the quantity of eruption, always influences more or less the progress of inflammation in it."

Sixthly, Nor can it be denied, that as far as we have a right to draw our conclusions from the tables of mortality, published in reference to this question, vaccination tends much more surely and effectually to the *prevention of fatal results*, than inoculation. Thus among the cases stated to us by Doctors Bell and Mitchell, as occurring in Philadelphia in 1823–24, out of 248, 64 had been previously vaccinated, 1 only died; 7 had natural small pox previously, three of these died; 9 had been inoculated, 3 of these died; 13 unknown, no deaths. Of those entirely unprotected, (155 in number,) there died 85, more than one half—a dreadful mortality.

It is surely impossible to set in a stronger light the advantages of vaccination, than is done in the above paragraph. Results similar to these are given in the annual reports of the National Institution of Great Britain, and in every other authentic document, without exception, to which we have access.

In our own community, variolous and varioloid diseases have prevailed repeatedly. I give a list of the deaths, extracted from our annual bills of mortality, as follows:

1824,	small pox, 1	swine pox, 1
1825,	" " 49	
1826,	" " 29	
1827,		swine pox, 1
1828, 1829,	no deaths recorded.	
1830,	small pox, 17	varioloid, 4.—Total, 102.*

Of whom, as far as I could ascertain, on the most diligent inquiry, but one was known to have been previously vaccinated.

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* The greatest number of cases occurred in 1829–30. Vaccination had then been urged extensively. The city and suburbs contain a population of 40,343. During the whole of the above period, cases of small pox were occasionally brought into the harbor by vessels from infected ports.

If we ask, how has this ancient and justly dreaded pestilence been deprived of its terrors, and shorn of its fatal energies, what shall be the impartial answer? Not by any change in the nature of the case, not by any loss of its inherent power over the human constitution, for the mortality among the unprotected is most appalling—greater than that of yellow fever, or perhaps even the plague, amounting every where, it would seem, to fully one half. Nor is it owing to such protection as inoculation affords, for that practice has been obsolete among us for the last quarter of a century. But it is clearly attributable, and we do not hesitate to ascribe it, to the kindly influence of the vaccine—the most valuable among the generous benefits conferred upon their fellow men, by the cultivators of the divine art of healing.

MEASLES.

Morbilli—Rubeola.—A specific form of fever, eruptive, contagious, inflammatory. It is often epidemic as well as contagious. It is difficult to communicate by inoculation, but Home and Speranza affirm their success—employing blood taken from the vivid patches of eruption.

Symptoms.—Rubeola makes its appearance with the ordinary tokens of catarrh. There is rigor often, followed by heat of skin, headache, hard and frequent pulse, soreness of throat, watery redness of the eyes, sneezing, a hard and dry cough, nausea and retching. In children, convulsions occasionally attend. This state of things may continue for many days, but usually on the fourth the eruption breaks forth, at first visible on the face and arms, gradually spreading over the body. It is in patches of small red spots, rough and a little elevated. The fever generally abates, but not always on its coming out. The eyes suffer much from it, the adnata being covered and the lids swollen. It begins to fade on the seventh, and soon dies away, the cuticle desquamating in minute branny scales. In the progress of measles, or at the subsidence of the eruption, pneumonia is very apt to develope itself. At this latter period, diarrhœa of very obstinate character often arises. Rubeolous ophthalmia is apt to be persistent.

The *prognosis* in measles is generally favorable, and the danger is fairly proportioned to the attendant maladies above mentioned, the pulmonary inflammation especially. In children the convulsions are occasionally, though not often, fatal. It sometimes happens that the fever is of low typhous type, which is unfavorable. The "striking in," or sudden disappearance of the eruption, is also unpropitious, and excites well grounded alarm.

The *diagnosis* does not seem to me difficult; yet it was not until nearly the end of the 17th century, that measles were separated from small pox, a confusion which we should now regard as impossible.

It may be confounded with scarlatina, which has indeed been called confluent measles. This very phrase suggests a distinction, for the patches of rubeolous eruption are usually separated by notable intervals. In 1829, however, I saw some cases in which they were nearly confluent. In scarlatina the deep diffused redness of the tongue and mouth is diagnostic. The catarrhal affections are prominent in measles—the sneezing, coughing, &c., and the ophthalmia, which is often absent and very seldom severe in scarlatina.

Pathology.—One might almost venture to declare that rubeola consists in the combination of some peculiar exanthema with catarrhal fever. This affects the human constitution but once, a rule presenting very few exceptions. The eruption may occur alone, a circumstance not unfrequently met with in rubeolous epidemics—the Rubeola incocta of Good, R. sine catarrho of Willan, the bastard measles of common people. Now by this form the susceptibility to a second attack is not destroyed nor even impaired. Other varieties of measles are noticed by writers—R. nigra, R. maligna, R. variolosa. I have met with none of these. The concurrence of measles with typhous fever, presents a livid eruption, with great danger, a compound of *nigra* and *maligna*.

Treatment.—It often happens that the catarrhal symptoms which precede the eruption, are not sufficiently severe to call for any remedial management, and the nature of the case is first shown by the appearance of the red patches on the surface. Under such circumstances it is best not to interfere, farther than to

keep the patient at rest in bed, and on low diet, regulating properly the temperature of his apartment, which should be moderately but not unpleasantly warm. But in a proportion of the cases, something more will be required. If there are tokens of pulmonary inflammation, and the pulse will bear it, venesection should be freely resorted to, and the use of the lancet followed by the administration of cathartics, combined with diaphoretics, as the solution of Epsom salt in the infus. rad. serp. The vascular excitement being thus reduced, the diaphoretics should be continued, with some demulcent and anodyne preparation, to relieve cough and procure rest. Cups or leeches to the chest may be demanded, and the thorax enveloped in warm poultices, if the dyspnœa be severe. In children affected with much gastric disorder and convulsions, the emetic is useful—given perhaps while the subject is in the warm bath, and followed by a mercurial cathartic. The eyes should be kept clean with tepid water at first, and afterwards washed with mild astringent collyria. If diarrhœa comes on upon the subsidence of the eruption, small doses of opium will restrain it, aided by the cretaceous mixture with kino, or by small doses of acet. plumb.

The *pectoral* uneasiness remaining after measles, is best removed by the persevering application of successive blisters to the chest, or the irritation of the tartar emetic ointment, while we administer full doses of Dover's powder nightly.

The sudden disappearance—"striking in"—of the eruption, is always alarming, and apt to be attended with convulsions in children; and in adults, with dyspnœa and abdominal distress. If the pulse be full and hard, we must bleed freely; but if on the other hand, as is more common, the patient has sunk into a sort of collapse, we must resort to the highest order of stimulants. The hot bath, of 100° Fah. at least, must be made ready, while we apply sinapisms to the cold and pale, or livid surface; the camphorated tincture of opium, with the volatile alkali, and hot wine or brandy, must be given boldly and in abundance, until the skin becomes warm and the pulse rises.

When rubeola is accompanied with fever of typhous character, it is proper to premise a mild emetic, after which a mercurial cathartic will be of service, followed promptly by the stimulating

diaphoretics, which should be persevered in, adapting the doses to the condition of the patient and the effect produced.

The *convalescent* from measles requires to be treated with caution. His diet must be mild and unstimulating, though nutritious, and he must be clad warmly, and guarded from all exposure.

SCARLATINA.

Scarlet fever.—A contagious, eruptive, pyrectic disease, characterized by a peculiar efflorescence of a very florid red hue, whence the name designating it. First described about the middle of the 17th century. It is often epidemic, as well as contagious. It has been communicated by inoculation, and as has been asserted, with the same effect as in small pox, of procuring a milder disease. As a general rule, it attacks but once the same subject.

Scarlatina is divided by writers, commonly, into three varieties—S. simplex, S. anginosa, S. maligna. I regard these as mere differences in degree of violence and intensity. The attack is ushered in with irregular shiverings, attended by oppression at stomach, and nausea, with occasional vomiting; then succeed heat of skin, thirst, frequent pulse, and headache, with sometimes delirium. The eruption appears generally on the second day, but may postpone until the 3d or 4th, showing itself first on the face and neck, and gradually spreading over the trunk and limbs, until it almost covers their surface. On the succeeding day, the lining membrane of the mouth, fauces and pharynx becomes inflamed, with ulceration of the tonsils and uvula, in the anginose form. The tongue throws off its fur and assumes a deeply red color, the surface being at first smooth, but soon shining with elevated and projecting papillæ; it is acutely sensible to the touch, or to the application of temperature either above or below its own. The efflorescence, which in many cases is almost confluent, is bright red, hot, dry, little elevated or rough, indistinctly papular. The skin seems thickened. On the 5th and 6th days it begins to fade, and desquamates gradually in minute branny flakes. At this time the hands and feet are swollen, and for some short period the new surface remains morbidly sensible, especially that of

the mouth. The inflammation in the anginose form, is not always attended with ulceration, but sometimes the tonsils, &c. are covered with flakes of lymph or false membrane.

In bad cases the eruption comes out irregularly, and is ready to recede. When this occurs, congestion or inflammation of some internal organ is prompt to follow, and we have either dyspnœa with thoracic pain, or vomiting and purging, or convulsions. If the patient be not quickly relieved, the pulse sinks, the countenance becomes ghastly, the complexion pale or livid, the skin cold, and death rapidly hastens on.

By the term Scarlatina maligna, I would designate those cases in which the fever assumes the typhous type. This is common in some localities, where of course the epidemic visitations of scarlet fever are highly dreaded. The eruption in these attacks may be early or otherwise. The throat is affected with ulceration, which has a tendency to slough, is of ash color, and gives out a fetid odor, and an acrid discharge, excoriating the nostrils, offending the stomach and intestines, and producing vomiting and purging. The internal organs are often attacked at the onset; there may be delirium, often quiet and playful—dyspnœa with mucous râle, and intestinal or peritoneal inflammation. The termination of this variety is often fearfully hurried, taking place from the 3d to the 5th day. Recovery is very slow and for a long time doubtful.

The convalescence from scarlatina is attended in many cases with anasarca, and in some with general dropsy. It is not so apt as measles or small pox to leave permanent sequelæ, affecting the thoracic or abdominal viscera.

Autopsy.—The appearances on examination after death, vary. In some, there is engorgement of the brain, and vascularity of the membranes, with effusion. In others, the lungs are congested and hepatized; in others still, there is injection of the mucous surface of the stomach and intestines. I have had no opportunities of personal observation, having lost but a single case of scarlatina, which I was not permitted to inspect.

Diagnosis.—I have not found it difficult to distinguish scarlet fever from measles, which it most resembles, by the want of catarrhal symptoms in the fever of incubation—by the confluent

extension and peculiar appearance of the eruption, which in measles is in patches, more distinctly papular and more prominent. The scarlet tongue, with elevated and swollen papillæ, is also characteristic. They differ much in the sequelæ to which they subject the patient. The books make a confusion between Scarlatina and Cynanche maligna. In the instances of the latter formidable pestilence which I have met with, the eruption was not general or much diffused, and the tongue continued furred thickly to the end.

Prognosis.—Scarlet fever, as it prevails in this city, (and it is of frequent occurrence,) assumes usually a mild form, and the proportion of deaths is small. The type of fever in the first place, and in the second the degree in which the internal organs suffer, would indicate the force of the attack. Thus, if there were delirium or convulsions, or the ulcers of the throat assumed a gangrenous aspect, or dyspnœa supervened, and especially if with any or all these there were combined a disappearance of the rash or efflorescence, we should know the patient to be in serious danger.

Treatment.—In general, it will be sufficient to commence the management of the case with a mild *cathartic.* For children, I prefer the castor oil; in adult cases, a combination of Epsom salts with magnesia, or rhubarb, and some aromatic. In the great majority, no farther interference will be necessary. Small doses of tinct. op. camph. are useful to tranquillize the restlessness of the patient, and determine to the surface. Attacks of more than ordinary violence however occur, in which we are called on for farther aid. If the vascular excitement be specially high, it may be reduced by the lancet. The throat being much inflamed, we may apply leeches at the angle of the jaw or on the neck. An *emetic* will relieve occasionally the oppressed stomach, if it be not emptied by spontaneous vomiting. After the eruption is fairly out, the *cathartic* should be abandoned, and the case trusted to diaphoretics.

Currie, Gregory, and other high authorities, advise strongly the *cold affusion* in scarlet fever, and attribute to it the best results; while, on the other hand, those who consider the cutaneous eruption in the exanthemata as a metastasis from the mucous mem-

branes, which they regard as the seat of primary irritation, deprecate the application of cold water, as extremely dangerous. Truth lies between them—but in general we may decide that the remedy, though safe, is not necessary, nor capable of the striking good effects which some would teach us to expect from it. Should any form of visceral inflammation arise in the progress of the case, it must be combated with the usual remedial measures. I am not aware that the connection with scarlatina, modifies the necessary treatment.

In Scarlatina maligna, it is prudent to begin with a prompt *emetic*, followed by a mild dose of *calomel*. The cordial diaphoretics are early required, and may be combined with other stimulants in requisite amount. Cinchona, the volatile alkali, and the tinct. op. camph. are among our best remedies. The hot bath should be used, if the surface is cold and pale or livid, and sinapisms extensively applied. If the bowels are not moved by the mercurial, enemata should be administered. The throat should be washed with tepid water and steamed, and if there be from the ulcers much fetid discharge, which may irritate the stomach, the *emetic* may require to be repeated.

Great confidence is placed by many practitioners, in the exhibition of the infusion of Cayenne pepper, both as a local corrector of the morbid condition of the gangrenous ulcer, and as the stimulant best adapted to the exigencies of the case.

The dropsical affections which supervene so often during convalescence from scarlatina, must be treated as formerly advised, under the head of Hydrops, with this modification, that they allow and require an early and free use of tonic and aromatic formulæ, as the infus. cinchon. with rad. serp. and camphor, in small doses, with nitrat. potass. and nitrous ether.

I ought not perhaps to omit, that the German homœopathists propose the use of belladonna as a preventive of scarlatina in all its forms. They imagine it to excite a state of disease similar to, or identical with scarlatina. The speculation is ingenious, but it is not sufficiently confirmed. My own experiments with the belladonna have been altogether unsatisfactory.

The femoral ring is the inner part of Poupart's ligament - The femoral sheath is the outer continuation of the transversalis fascia, on the inside of the femoral vein - The dissection or opening is often, External Iliac, Epigastric, Cooper's fascia and the peritoneum & the peritoneal sac - The fascia lata does not cover the opening of a femoral hernia - It lies on the inside of the crescentic edge and on the inner crescentic edge of fascia lata - Cooper's fascia is a membranous structure attached to the pectineal line - It conceals the femoral ring - If you cut towards the pubes you will cut the intestine - if towards the right or outward, you will cut the femoral vein - You must always cut directly upwards - in femoral hernia sometimes the obturator artery arises from femoral artery and passes over the sac which happens one in about forty cases - It cannot be reduced - It generally makes prominence like the opposite - The fascia lata is a continuation of fascia transversalis - It is the fascia which passes in and covers the psoas & iliacus muscles - Femoral hernia is most generally found in females - scrotum in males -